

Maximizing Utilization of the Armenian EyeCare Project's Diabetes Online Training Platform

An Interactive Qualifying Project
submitted to the faculty of
WORCESTER POLYTECHNIC INSTITUTE
in partial fulfillment of the requirements for the
degree of Bachelor of Science

By:

Greta Khandanyan
Leah Maciel
Nicholas Sirota
Nazeli Ter-Petrosyan

Report Submitted to:
Armenian EyeCare Project

Karen Kashmanian Oates
Worcester Polytechnic Institute

Hrachya Kocharyan
Norayr Ben Ohanian
American University of Armenia



WPI

AUA
American University of Armenia

This report represents work of WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its web site without editorial or peer review. For more information about the projects program at WPI, see <https://www.wpi.edu/project-based-learning>.

Abstract

The Armenian EyeCare Project (AECp), a non-profit, provides Armenians with proper eye care services. The goal of this project is to maximize utilization of the AECp's online training platform which aims to educate the public and medical professionals about diabetes and eye care. The project followed a 3-step methodology: interviews and focus groups, recommendation development and implementation, and result measurement. Short-term and long-term recommendations were developed, with immediate actions taken to enhance platform utilization, and plans proposed for further improvement.

Acknowledgements

The team would like to thank the Armenian EyeCare Project for providing us with this meaningful opportunity. We are specifically grateful for Tamar Minasyan, Nelli Shahazizyan, Araksya Isakhanova, and Nune Yeghiazaryan for supporting us and guiding us through our project. We would also like to thank our project advisors, Karen Kashmanian Oates, Hrachya Kocharyan, and Norayr Ben Ohanian for their invaluable feedback and instruction throughout the term. We would also like to thank our ID 2050 instructor, Laura Bond, for her guidance on our project proposal and preparing us for our research in Armenia. Lastly, we would like to thank those who participated in our interviews and focus group discussions. Their insights and feedback were invaluable to our project and the development of recommendations.

Executive Summary

In Armenia, an estimated 133,600 adults battle diabetes, a chronic health condition that can lead to vision impairment and blindness. The Armenian EyeCare Project (AECp) aims to make a difference by envisioning a country where preventable blindness has been eliminated, and Armenians can access free eye care and learn how to protect their eyesight. To achieve this, the AECp has launched a free online training platform (OTP) for diabetes education, tailored to serve two distinct user groups: people with diabetes and medical professionals. Accessible at <https://dmtool.aecp.am/en/>, the OTP offers a wealth of resources, including training videos, educational materials, and self-assessment tests, with content designed to meet the needs of each user group. Despite its robust resources, the OTP has yet to reach its intended audiences effectively.

This project aimed to enhance the utilization of the AECp's online training platform and increase the knowledge of the platform among medical professionals and the public. To achieve the goal, specific objectives were established:

1. Identify the needs of potential users and target audiences currently underutilizing the OTP through interviews and focus group discussions.
2. Develop recommendations to maximize OTP usage among identified target audiences and potential users.
3. Implement recommendations to increase the user base and online presence of the OTP.
4. Analyze data on usage before and after implementation of the recommendations.

In close collaboration with the AECp, the team conducted interviews and focus group discussions with medical professionals, and people with diabetes and their caregivers. Practicing family medicine doctors and endocrinologists across Armenia were invited to share their insights into diabetes management, diabetic eye care treatment, and suggestions for enhancing the OTP. Additionally, two focus group discussions were facilitated with individuals with diabetes and their caregivers to

understand their use of the OTP and suggestions for its improvement. To ensure a thorough understanding of the OTP and its potential impact, informational sessions were conducted via Zoom prior to individual interviews and focus group discussions. During the second through fifth weeks of the project, a series of individual interviews and focus group discussions were conducted via Zoom and in person. The team analyzed themes brought up by participants in interviews and focus groups, as well as common themes across the different discussions to develop ways that the OTP can be promoted to effectively support both patients and medical professionals. These interactions provided rich insights, with participants sharing their experiences, challenges, and aspirations related to diabetes management and eye care. Furthermore, the team conducted an analysis of similar online training platforms. Through examining both direct and indirect competitors' offerings, features, user experience, and promotion strategies, the team identified prevailing approaches and benchmarks in the market. This analysis provided valuable insights into the most effective promotional strategies, consumer preferences, and general industry standards, and search engine optimization.

Based on the insights from interviews, focus group discussion, analysis of similar OTPs, and consultations with the AECP, the team developed a set of recommendations. These recommendations are categorized into short-term measures feasible during the IQP project and longer-term strategies for future implementations by the AECP. Short-term recommendations prioritize enhancing online visibility, optimizing searchability, and promoting the platform among medical professionals and people with diabetes that the AECP has already worked with, leveraging social media and Viber groups. Longer-term recommendations include search engine optimization, incorporating in-person promotion of the OTP through doctors and educational events organized by the AECP, and targeting younger demographics as a new user group of the OTP. The overarching goal of all recommendations is to improve OTP utilization by bolstering website visibility and searchability, and enhancing awareness and accessibility of the platform and its resources. Collaboration with the AECP facilitated the implementation of select short-

term recommendations, with a clear plan established to implement the remaining short-term recommendations promptly after the project was completed.

The team developed and provided the AECP with two guides. The first guide includes the short- and long-term recommendations tailored to enhance OTP utilization. The guide describes what the recommendations are and how they should be implemented, highlighting how the recommendations will help improve utilization of the platform. The second is a guide to analyze the impact of recommendations using Google Analytics. Together, these guides will serve as invaluable resources, empowering the AECP to refine the platform and extend its reach to medical professionals and individuals with diabetes across Armenia. Overall, this project signifies the progress in addressing diabetic eye disease in Armenia and underscores the AECP's commitment to enhancing healthcare accessibility. By increasing OTP utilization and awareness, the AECP aims to equip individuals and medical professionals with the tools and knowledge necessary to effectively manage diabetes and mitigate associated risks, fostering a healthier future in Armenia.

Authorship

Section	Author	Editor
Abstract	Nick Sirota	Leah Maciel
Executive Summary	Leah Maciel	Greta Khandanyan
Chapter 1. Introduction	Greta Khandanyan	Leah Maciel
Chapter 2. Background	Leah Maciel	Nick Sirota
2.1 Diabetes and its Prevalence in Armenia	Leah Maciel	Nick Sirota
2.2 About the Armenian EyeCare Project	Greta Khandanyan	Leah Maciel
2.3 Online Training Platforms for Eye Care	Nazeli Ter-Petrosyan	Greta Khandanyan
2.4 Gaps in Online Training Platforms	Nazeli Ter-Petrosyan	Greta Khandanyan
2.5 About the Diabetes Online Training Platform	Nick Sirota	Nazeli Ter-Petrosyan
Chapter 3. Methodology	Leah Maciel	Nazeli Ter-Petrosyan
3.1 Interviews and Focus Group Discussions	Leah Maciel	Nick Sirota
3.1.1 Interviews with Medical Professionals	Nick Sirota	Greta Khandanyan
3.1.2 Focus Group Discussions with People with Diabetes	Nick Sirota	Leah Maciel
3.3 Methods for Developing Recommendations for OTP Promotion	Greta Khandanyan	Nick Sirota
3.4 Measuring Recommendation Impact	Leah Maciel	Nazeli Ter-Petrosyan
Chapter 4. Research and Analysis	Leah Maciel	Nazeli Ter-Petrosyan
4.1 Results from Interviews and Focus Group Discussion	Nazeli Ter-Petrosyan	Greta Khandanyan
4.2 Analysis of Similar Online Training Platforms	Nick Sirota	Leah Maciel
4.3 Recommendations for Promotion of the OTP	Leah Maciel	Nazeli Ter-Petrosyan
4.3.1 – 4.3.17	All	All
4.4 Implementation of the Recommendations	Greta Khandanyan	Nazeli Ter-Petrosyan
4.5 Analysis of Google Analytics Results	Leah Maciel	Nick Sirota
Chapter 5. Discussion and Conclusion	Leah Maciel	Nick Sirota
Appendix A. Informed Consent Form	Nick Sirota	Nazeli Ter-Petrosyan

Appendix C. Interview Guide for Medical Professionals in English	Nazeli Ter-Petrosyan	Greta Khandanyan
Appendix D. Interview Guide for Medical Professionals in Armenian	Nazeli Ter-Petrosyan	Greta Khandanyan
Appendix E. Focus Group Guide in English	Nick Sirota	Leah Maciel
Appendix F. Focus Group Guide in Armenian	Greta Khandanyan	Nazeli Ter-Petrosyan
Appendix G. Interviews Notes	Nazeli Ter-Petrosyan	Greta Khandanyan
Appendix H. Focus Group Discussion Notes	Greta Khandanyan	Nazeli Ter-Petrosyan
Appendix I. Instruction Manual for the OTP	Nazeli Ter-Petrosyan	Greta Khandanyan
Appendix J. Guide to Using Google Analytics	Leah Maciel	Nick Sirota
Appendix K. Recommendations in Armenian	Greta Khandanyan	Nazeli Ter-Petrosyan

Table of Contents

Abstract.....	i
Acknowledgements.....	ii
Executive Summary.....	iii
Authorship	vi
List of Figures	x
List of Tables	xi
Chapter 1. Introduction	1
Chapter 2. Background	3
2.1 Diabetes and its Prevalence in Armenia	4
2.2 About the Armenian EyeCare Project	5
2.2.1 Direct Patient Care	7
2.2.2 Medical Education and Training	7
2.2.3 Promoting Public Education and Awareness	8
2.2.4 Conducting Research	8
2.2.5 Strengthening the Eye Care Delivery System through Capacity Building	8
2.3 Online Training Platforms for Diabetic Eye Care.....	9
2.4 Gaps in Online Training Platforms	12
2.5 About the Diabetes Online Training Platform.....	12
Chapter 3. Methodology	17
3.1 Identify Needs of Potential Users Through Interviews and Focus Group Discussions	17
3.1.1 Interviews with Medical Professionals	18
3.1.2 Focus Group Discussion with People with Diabetes	19
3.2 Methods for Developing and Implementing Recommendations for OTP Promotion	21
3.3 Measuring Recommendation Impact	23
Chapter 4. Research and Analysis	24
4.1 Results from Interviews and Focus Group Discussion	24
4.2 Analysis of Similar Online Training Platforms	27
4.3 Recommendations for Promotion of the OTP	31
4.3.1 Link the OTP to the Main AECP Website.....	31
4.3.2 Promote the OTP on the AECP’s Social Media Accounts	31
4.3.3. Promote the OTP through the AECP’s Viber Groups	32
4.3.4 Update the link in the YouTube Video Descriptions	33

4.3.5 Create a Facebook Page for the OTP	34
4.3.6 Advertise to the AECP’s Facebook Group for Medical Professionals	36
4.3.7 Create an Instruction Manual for using the OTP	36
4.3.8 Encourage Medical Professionals to Promote the OTP to their Patients	36
4.3.9 Advertise the OTP on the AECP Promotional Material	37
4.3.10 Write a Blog Post about the OTP on the AECP Blog.....	37
4.3.11 Implement a Method to Track Engagement with Individual Videos on the OTP	38
4.3.12 Implement Search Engine Optimization Strategies	38
4.3.13 Promote the OTP During the AECP’s Educational Programs	41
4.3.14 Update the Textbooks that the OTP are Based on	41
4.3.15 Partner with Diabetes Organizations in Armenia	41
4.3.16 Promote the OTP During Diabetes Week	42
4.3.17 Understand the Promotional Channels used by Young People	42
4.4 Implementation of Recommendations	43
4.5 Analysis of Google Analytics Results	43
Chapter 5. Discussion and Conclusion	49
Chapter 6. References.....	53
Appendix A. Informed Consent Form	56
Appendix B. IRB Approval	58
Appendix C. Interview Guide for Medical Professionals in English	59
Appendix D. Interview Guide for Medical Professionals in Armenian.....	61
Appendix E. Focus Group Guide in English	63
Appendix F. Focus Group Guide in Armenian.....	64
Appendix G. Interview Notes	65
Appendix H. Focus Group Discussions Notes.....	68
Appendix I. Instruction Manual for using the OTP.....	69
Appendix J. Guide to Using Google Analytics	72
Appendix K. Recommendations in Armenian	78

List of Figures

Figure 1. Map of the AECP work across Armenia (Armenian EyeCare Project, 2018).....	6
Figure 2. Example screenshot from a marking exercise for different lesions; hemorrhages: magenta, soft exudates: yellow, and cotton wool spots: blue (Andersen et al., 2022)	11
Figure 3. Image of the OTP for people with diabetes, featuring training videos, educational materials, and handouts (Armenian EyeCare Project, 2023).....	14
Figure 4. Image of the OTP for doctors, featuring CME tests, educational materials, and training videos (Armenian EyeCare Project, 2023).....	15
Figure 5. Semrush analytics showing the website traffic and keywords for the Prevent Blindness	28
Figure 6. Semrush analytics showing the website traffic and keywords for the London School of Hygiene and Tropical Medicine’s website	30
Figure 7. Graph from Google Analytics of total users to the OTP from September 1st, 2023, to April 27th, 2024	45
Figure 8. Google Analytics chart of how new users find the OTP from September 1st, 2023, to April 27th, 2024	46
Figure 9. Google Analytics map of OTP users per country from September 1st, 2023, to April 27th, 2024	47

List of Tables

Table 1. Information about medical professionals interviewed, their profession and place of work..... 24

Table 2. Information about focus group discussion participants, location, and the meeting format..... 25

Chapter 1. Introduction

Diabetes is a chronic health condition caused by an impaired ability to either produce or effectively utilize insulin, a hormone involved in regulating blood sugar levels (Centers for Disease Control and Prevention, 2023). Diabetes can cause various health complications, such as heart disease, kidney disease, and vision impairment or blindness (Centers for Disease Control and Prevention, 2023). While there are treatment methods designed to slow down the progression of vision loss, these are often costly and inaccessible. In Armenia, an estimated 133,600 adults are diagnosed with diabetes, with a third of those also diagnosed with diabetic retinopathy, the most common form of diabetic eye disease (Magliano & Boyko, 2021). Recognizing the need to address preventable blindness in Armenia, Dr. Roger V. Ohanesian established the Armenian EyeCare Project (AECp) in 1992. The organization has developed a series of projects that aim to eliminate blindness in Armenia and provide free and accessible eye care to Armenians. One of the AECp's initiatives is a free online training platform (OTP) for diabetes, found at the following address: <https://dmttool.aecp.am/en/>. The OTP serves two distinct user groups: people with diabetes and medical professionals. On the OTP, these groups can access training videos, educational materials, and self-assessment tests, with content designed to meet the needs of each user group. People with diabetes can learn about eye care and watch and download educational resources. Medical professionals can take accredited continuing medical education assessments for free. It is mandatory for medical professionals to obtain these credits every 5 years, so it is important that they have easily accessible training.

While the development of the OTP and the resources it provides has been successful, the platform has not yet been disseminated to the intended audiences. This project aims to enhance the utilization of the AECp's online training platform and increase the knowledge of it for medical professionals and the public. To achieve the goal, specific objectives were established:

1. Identify the needs of potential users and target audiences currently underutilizing the OTP through interviews and focus group discussions.
2. Develop recommendations to maximize OTP usage among identified target audiences and potential users.
3. Implement recommendations to increase the user base and online presence of the OTP.
4. Analyze data on usage before and after implementation of the recommendations.

The following chapter provides more details about diabetes and its prevalence in Armenia, as well as information about online training platforms, and the AECP and its online training platform. Later, the methodology chapter describes the goal and each objective in more detail and the methods applied to accomplish it. Lastly, following collaborations with the AECP, potential users of the OTP, and conducting thorough information research, the results chapter describes how the team devised, implemented, and measured the impact of optimal strategies for enhancing the utilization of the OTP.

Chapter 2. Background

Diabetes, a chronic health disease, is characterized by an impaired ability to either produce or effectively utilize insulin. Insulin is a vital hormone that regulates blood sugar levels within the body (Centers for Disease Control and Prevention, 2023). There are two types of diabetes, type 1 and type 2. In type 1 diabetes, a person has the inability to produce insulin, due to an autoimmune condition (Centers for Disease Control and Prevention, 2023). In type 2 diabetes, a person develops a resistance to insulin over time and is no longer able to effectively use insulin (Centers for Disease Control and Prevention, 2023). Both types of diabetes can result in elevated blood sugar levels in the bloodstream. Over time this can cause health complications such as heart disease, kidney disease, and vision loss (Centers for Disease Control and Prevention, 2023). In 2021, the estimated number of people aged 20 to 79 living with diabetes exceeded 537 million people, with over three-quarters of them residing in low- and middle-income countries (Magliano & Boyko, 2021). Understanding diabetes, its associated complications, and its prevalence in Armenia is imperative, as it highlights the significant health risks faced by Armenians and the necessity for targeted education and awareness to mitigate adverse health effects.

One significant complication arising from diabetes is the potential for vision loss. The most common form of vision loss in people with diabetes is diabetic retinopathy, caused by prolonged exposure to elevated blood sugar levels in the retina (Giloyan et al., 2015). Diabetic retinopathy, and diabetic vision loss in general, can occur with both type 1 and type 2 diabetes. The risk of developing vision loss increases the longer a person has diabetes (Centers for Disease Control and Prevention, 2023). In 2020, the estimated number of people globally with diabetic retinopathy was 103 million people (Teo et al., 2021). Diabetes also increases a person's risk to develop other forms of eye disease, including cataracts and open-angle glaucoma (U.S. Department of Health and Human Services, 2023).

While these conditions can severely impact vision, there are treatments to slow down their progression and preserve vision. People with diabetes can take preventive measures such as having a dilated eye exam at least once a year (Giloyan et al., 2015). Early detection and intervention for diabetic retinopathy can reduce the risk of vision loss by over 90% (Giloyan et al., 2015). In cases where diabetic retinopathy has already developed, various treatment options, including retinal scans and laser treatment are available (Armenian EyeCare Project, 2018). However, these treatment methods often require multiple sessions, which can be costly or difficult for people to access and travel to. Despite the existence of detection methods and treatments for diabetic retinopathy and other diabetes-related vision impairments, the effectiveness of these interventions hinge on awareness and accessibility. Vision loss impacts all aspects of a person's life, affecting not only physical health, but also quality of life and mental health. Potential mental health consequences of vision loss include feelings of loneliness, social isolation, loss of independence, and heightened risks of depression and anxiety (Welp et al., 2017). Furthermore, vision loss increases medical expenses and can pose challenges in retaining employment (Welp et al., 2017). Given the inherent physical, emotional, and financial risks of diabetes and vision loss, facilitating access to diabetes education and care is paramount in preventing and mitigating these impacts.

2.1 Diabetes and its Prevalence in Armenia

Much like the global scenario, Armenia grapples with the health and economic repercussions of diabetes. In 2021, an estimated 133,600 adults in the country were diagnosed with diabetes, and approximately a third of those people were also diagnosed with diabetic retinopathy (Magliano & Boyko, 2021). While the exact prevalence of type 1 and type 2 diabetes in Armenia is unknown, it is estimated that type 2 diabetes is more prevalent in the country (Magliano & Boyko, 2021). Beyond the health implications, diabetes places an economic burden on people with diabetes and their families. The collective diabetes-related health expenses in Armenia during 2021 was estimated at \$156.8 million

USD, averaging \$1,174 USD per person (Magliano & Boyko, 2021). In Armenia, the Ministry of Health pays for the health care system. However, due to a limited government budget, there can be significant out-of-pocket costs for certain treatments or medications. Furthermore, due to the current criteria and laws, people with type 2 diabetes often only qualify for the lowest level and least financially and medically supportive level of disability status in Armenia (The Law Of The Republic Of Armenia, 2021). Disability status helps to offset or eliminate the costs of medications, tests, and treatments for diabetes (The Law Of The Republic Of Armenia, 2021). For example, a study on the global affordability of diabetes medicine found that the median price for a 30-day supply of Metformin, an essential medicine to treat type 2 diabetes, was \$7.38 USD in Armenia (Babar et al., 2019). In the United States, the cost of Metformin is approximately \$11 USD without insurance (Babar et al., 2019). While at face value there is little difference between the cost of Metformin in Armenia and the United States, after adjusting for purchasing power parity which is a way to standardize costs and take into account the wages and standards of living in each country, the median price for Metformin in Armenia skyrockets to \$1479.87 USD (Babar et al., 2019). The purchasing power parity cost of Metformin in Armenia was higher than 15 out of the 16 other countries in the study, including nearby countries such as Georgia. Although the cost of Metformin is partially covered by the government, it still means that people with limited income, or significant medical bills, such as those with diabetes, may be unable to afford or access the necessary treatments and medications.

2.2 About the Armenian EyeCare Project

The Armenian EyeCare Project (AECPP) is a nonprofit organization founded in 1992 with the mission of providing eye care to eliminate preventable blindness and its underlying causes among all children and adults living in Armenia (Armenian EyeCare Project, 2021). Dr. Roger V. Ohanesian, an ophthalmologist practicing in Orange County, California, founded the AECPP. The organization was formed after Armenia's Minister of Health pleaded for a strengthened healthcare system in 1991, as the country experienced a

rampant health crisis due to various factors such as the devastating earthquake that occurred in 1988, a six-year war with Azerbaijan, seventy years of Soviet mismanagement. Compounding these challenges was the prevalence of severe eye diseases and conditions (Armenian EyeCare Project, 2021).

The AECOP operates with a traditional nonprofit structure and has offices in both Armenia and the United States. The U.S. office, located in Newport Beach, California, oversees administrative, financial, marketing, and fund development functions. The Armenian office, located in Yerevan, is responsible for executing the project's several eye care programs throughout the country (Armenian EyeCare Project, 2021). These programs include medical education and training initiatives for physicians, nurses, and other medical staff, as well as the coordination of operational logistics for all programs. In addition to the main office in the capital, Yerevan, the AECOP operates in five other offices in the regions of Armenia, namely Shirak, Tavush, Lori, Vayots Dzor, and Syunik, as shown in Figure 1. Operating in both Yerevan and 5 regions allows the AECOP to provide accessible care to people across Armenia. The widespread work of the AECOP across Armenia, including regional clinics, is evident in Figure 1.



Figure 1. Map of the AECOP work across Armenia (Armenian EyeCare Project, 2018)

The importance of the AECP is clear, since 1992, the AECP has made over 50 medical missions to Armenia, screened more than 500,000 patients, performed over 20,000 surgeries, and treated over 3,000 cases of diabetic retinopathy (Armenian EyeCare Project, 2021). To complete its mission of providing eye care to eliminate preventable blindness, the AECP developed five key programs in Armenia, many of which come at little or no cost for the participants.

2.2.1 Direct Patient Care

The AECP works tirelessly to achieve its mission of eliminating preventable blindness and its causes among people living in Armenia. They have developed and implemented a diverse range of effective programs, including the Center of Excellence, Children's Amblyopia Eye Screening, Corneal Transplant Program, Diabetes Program, Eyeglass Program, Mobile Eye Hospital, Community Programs, Orphanages & Seniors initiative, Prosthetic Eyes Program, Regional Eye Centers, and Subspecialty Clinics (Armenian EyeCare Project, 2021). These programs provide screenings and eye care to patients across Armenia.

The programs focus not only on providing treatment to those with vision loss, but also to screen patients and prevent blindness, especially in children.

2.2.2 Medical Education and Training

The AECP places significant emphasis on medical education and training, with a multi-faceted approach. Initially, U.S physicians traveled to Armenia to provide eye care as part of medical missions. Subsequently, this program broadened to include progressive training for Armenian doctors, nurses, and other healthcare professionals (Armenian EyeCare Project, 2021). The program ensures the establishment of a sustainable healthcare system. The program includes various components such as: The AECP Annual International Ophthalmology Conference, family physician training, fellowships and next generation fellowships, medical education, neonatal nurses training, observership program, telesurgery, and the online training platform.

2.2.3 Promoting Public Education and Awareness

In its commitment to enhancing eye care awareness among Armenians, the AECP actively supports educational activities that increase awareness of eye care and provide valuable recommendations for effective eye healthcare to the public. This includes disseminating information through various channels, organizing awareness campaigns, and collaborating with communities to ensure widespread knowledge of eye care and safety (Armenian EyeCare Project, 2021). One example of this work is that the AECP has distributed over 800,000 educational materials on eye care and produced hundreds of TV and radio PSAs in Armenia, along with arranging visits to over 400 public schools and educational institutions (Armenian EyeCare Project, 2021). By continually expanding its public education initiatives, the AECP aims to empower individuals with the knowledge needed to prioritize their eye health.

2.2.4 Conducting Research

The AECP is actively engaged in comprehensive research efforts focused on improving the understanding of eye diseases, prevention strategies, and treatment approaches specific to Armenian regions (Armenian EyeCare Project, 2021). This includes a substantial emphasis on epidemiology work, where the organization conducts in-depth studies to analyze the prevalence, distribution, and determinants of eye-related conditions within the population.

2.2.5 Strengthening the Eye Care Delivery System through Capacity Building

The AECP strengthens the eye care infrastructure in Armenia by enabling local physicians to offer complete, comprehensive treatment services independently and at a low cost. Through capacity-building initiatives such as fellowships, the AECP aims to fortify the skills and capabilities of healthcare professionals, fostering a self-sufficient and robust eye care delivery system (Armenian EyeCare Project, 2021).

In summary, the Armenian EyeCare Project has strategically organized a comprehensive set of initiatives to achieve its mission of eradicating preventable blindness in Armenia and fostering eye

health. Through efforts in direct patient care, medical education and training platforms, public education campaigns, research, and strengthening local systems, the AECP is poised to make a significant impact in elevating eye health standards and care.

2.3 Online Training Platforms for Diabetic Eye Care

There are numerous resources available for patients to educate themselves about their health and medical condition. Typically, the primary source of information is medical professionals, who offer tailored insights during appointments (Jacot, 2023). Medical professionals are a valuable source of information, but accessibility to healthcare experts can sometimes pose challenges. Patients also seek out information from peers, friends, or family members with similar experiences (Jacot, 2023). These conversations can provide needed support during a diagnosis or treatment but may not always provide medically accurate information. Moreover, online sources, such as medical websites, social media, and online training platforms offer a wealth of information ranging from basic explanations of a condition and treatments to more advanced content aimed at medical professionals (Jacot, 2023). While online sources of information are more easily accessible, ensuring the accuracy of information remains crucial for patients and their families. Online sources that are sponsored by governments, universities, or NGOs tend to be the most accurate and unbiased forms of medical information.

To tackle the issue of diabetic eye disease around the world, many organizations are turning to online training programs to spread important information. Online training platforms have been designed and implemented by NGOs, universities, and governmental institutions worldwide, including the Prevent Blindness Foundation, London School of Hygiene & Tropical Medicine, and VIOLA in Denmark (Prevent Blindness Foundation, 2023; London School of Hygiene & Tropical Medicine, 2018; Andersen et al., 2022). These platforms aim to make information about diabetes and eye care more accessible, along with encouraging people to recognize and treat diabetes and vision loss.

One example is the Prevent Blindness Foundation's online platform, which gives healthcare professionals important information about diabetes-related eye issues. Founded in 1908, the Prevent Blindness Foundation is the United States' leading volunteer eye health and safety organization dedicated to fighting blindness and saving sight (Prevent Blindness Foundation, 2023). Their platform is freely accessible online and offers educational materials in both English and Spanish, tailored for healthcare professionals, community health educators, diabetes educators, and those involved in caregiving or diabetes education. It is specifically designed to address diabetes-related eye diseases, such as retinopathy, glaucoma, and cataracts, and covers methods for preventing vision loss and promoting eye health (Prevent Blindness Foundation, 2023).

Another example is the London School of Hygiene & Tropical Medicine's online course. The course is a comprehensive resource for understanding and addressing the diabetes challenge in preventing blindness (London School of Hygiene & Tropical Medicine, 2018). Participants gain an understanding of diabetic eye disease and its management, with a focus on collaborative efforts between health teams and individuals with diabetes to reduce the risk of vision loss and blindness. The course covers important aspects, such as natural history, epidemiology, and complications of diabetes (London School of Hygiene & Tropical Medicine, 2018). Participants learn about public health strategies for controlling diabetic eye disease and learn to evaluate the impact of diabetic eye disease on eye health services and society. The course also delves into models for detection, guidelines for grading and monitoring diabetic eye disease (London School of Hygiene & Tropical Medicine, 2018). The course is free to take, however there is a fee to get certification for completing the course (London School of Hygiene & Tropical Medicine, 2018). All the course resources emphasize practical implementation of the knowledge at both individual and program levels.

Another innovative online learning platform is VIOLA. The platform was designed to address the increasing demand for healthcare professionals well-educated about diabetic eye diseases, specifically in

Denmark (Andersen et al., 2022). The platform was developed for use by universities in Denmark (Andersen et al., 2022). The platform focuses on diabetic retinopathy, a common complication associated with diabetes that can lead to blindness if not addressed on time. As demonstrated in Figure 2, the platform incorporates different exercises, such as marking and drawing tasks, to improve medical professionals' hands-on skills in recognizing diabetic retinopathy abnormalities.

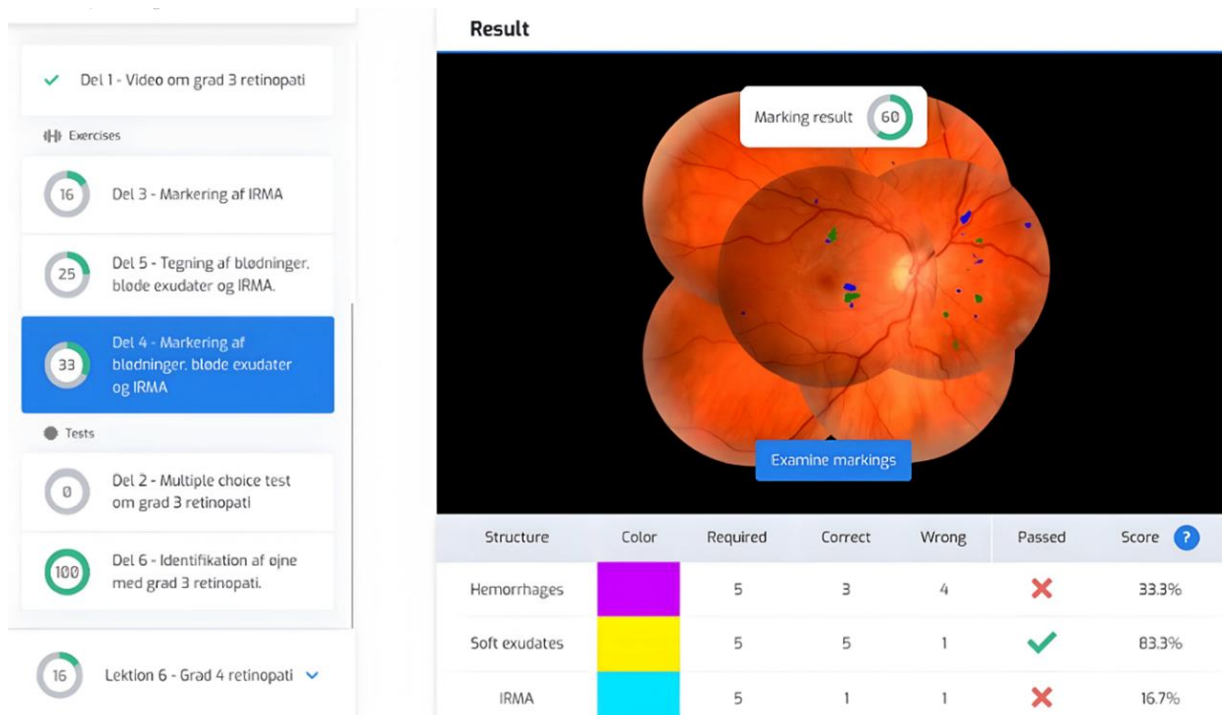


Figure 2. Example screenshot from a marking exercise for different lesions; hemorrhages: magenta, soft exudates: yellow, and cotton wool spots: blue (Andersen et al., 2022)

As demonstrated in Figure 2, users are able to get feedback on their markings to improve their skills. The hands-on activities allow users to improve their knowledge through the platform. VIOLA's content is adaptable, allowing instructors to add or remove material and rearrange lectures, exercises, and tests whenever needed. Consequently, the platform has the flexibility to support the development of additional courses to focus on other forms of diabetes-related eye diseases. These benefits and interactive features make VIOLA a valuable platform for medical professionals to learn about diabetic eye disease and help to draw professionals to the platform. In addition to its educational benefits, VIOLA

also contributes to research by generating data annotated by experts (Andersen et al., 2022). However, the platform is not widely available, and is only currently available for us by medical professionals in Southern Denmark (Andersen et al., 2022).

2.4 Gaps in Online Training Platforms

Current online training programs offer valuable resources for educating healthcare professionals, and people who are at high risk for diabetic eye diseases, however there are still gaps in these platforms that need to be addressed. Although some programs, such as the Prevent Blindness Foundation's platform, offer bilingual materials, there is still a need for broader language accessibility. Another gap is that the current focus of many programs is on specific regions or countries, such as VIOLA only being available in Southern Denmark. While most of the programs target healthcare professionals, tailoring content for various levels of expertise and roles within the healthcare system, such as family medicine doctors and ophthalmologists, could make the training more impactful. One of the most important gaps, especially for Armenia, is that many of the programs rely on online platforms requiring access to reliable internet, digital devices, and funds to pay for the platform or certifications. It is crucial that the programs consider the technological and economic accessibility barriers that may exist in certain regions or among specific demographics.

2.5 About the Diabetes Online Training Platform

In 2015, the AECF developed its first iteration of the online training platform (OTP) in partnership with the Orange Foundation in France (Armenian EyeCare Project, 2018). Its primary purpose was to educate ophthalmologists, primary healthcare providers, or anyone who wished to learn about eye care and evaluate their knowledge on it. Based on two textbooks authored by Drs. Roger Ohanesian and Marianne Shahsuvaryan, *Essentials of Ophthalmology* and *Eye Diseases*, the AECF created an in-person program that provided training, workshops, and other activities to educate doctors and the public in Yerevan and rural Armenia and shared evidence-based information on these topics

(Ohanesian, 2007; Ohanesian, 2005). Following the success of these in-person training courses, in 2017 the AECF received a \$200,000 grant from the World Diabetes Foundation to help grow its efforts (Dermenjian, 2017). The AECF transitioned the program to be an online training platform, found at the following address: <https://dmttool.aecf.am/en/>. The platform and all the resources on it are available to users at no cost. The platform enables the AECF to fulfill its mission and key goals of medical education, training, and promoting public education and awareness.

The OTP serves two distinct user groups: people with diabetes and medical professionals. On the patient side of the OTP, users can access training videos, educational materials, and self-assessments. These resources cover subjects including diabetes fundamentals healthy lifestyle practices, and the impact of diabetes on eye health. Materials are available in Armenian, Russian, and English, emphasizing actionable steps for improving health. Figure 3 demonstrates an example of the OTP for people with diabetes and the range of resources it offers, including videos on healthy lifestyles, diabetes and how to prevent it, and the free services the AECF offers.

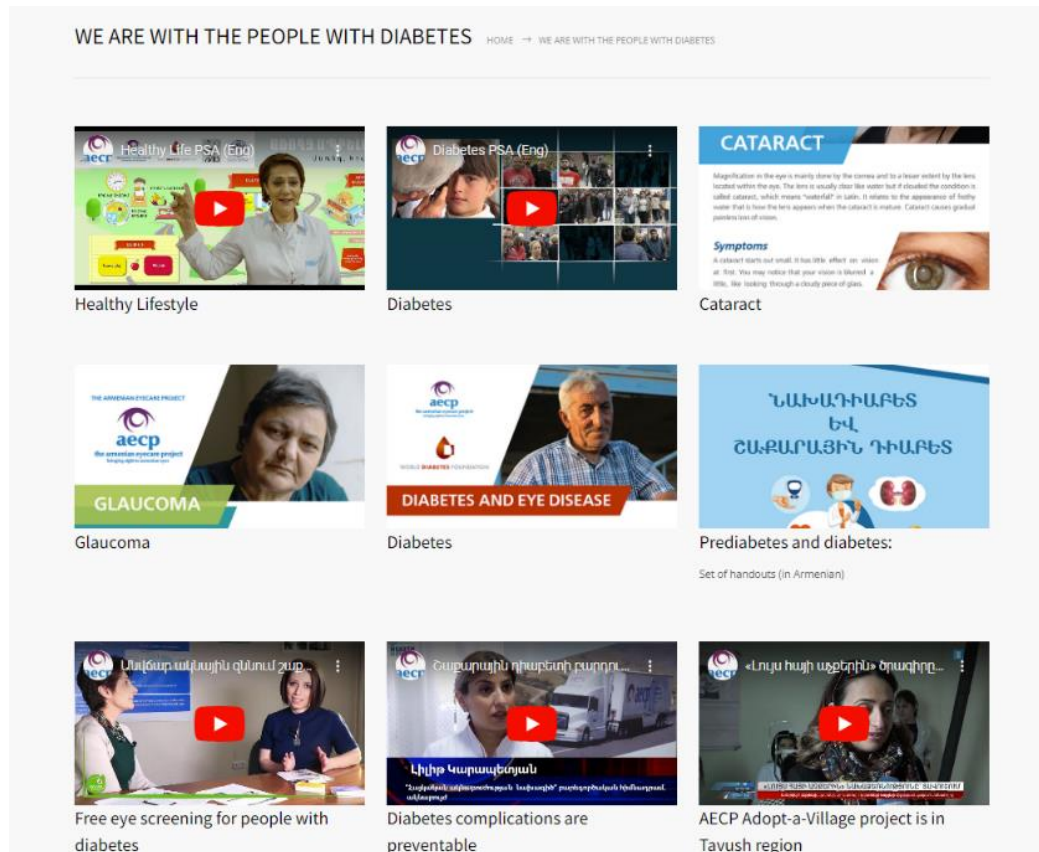


Figure 3. Image of the OTP for people with diabetes, featuring training videos, educational materials, and handouts (Armenian EyeCare Project, 2023)

As seen in Figure 3, the OTP also includes reading materials on cataracts, glaucoma, and diabetes, along with a handout on prediabetes and diabetes. The other main section of the OTP is for medical professionals. On this side, the OTP offers training videos and educational materials focusing on the biological aspects of diabetes, diabetic eye disease pathology, symptom recognition, and treatment protocols. Designed with healthcare providers in mind, these resources emphasize the knowledge essential for effective patient care. These materials are also available in Armenia, Russian, or English. Figure 4 shows an example of the OTP for medical professionals, including two tests and YouTube videos.

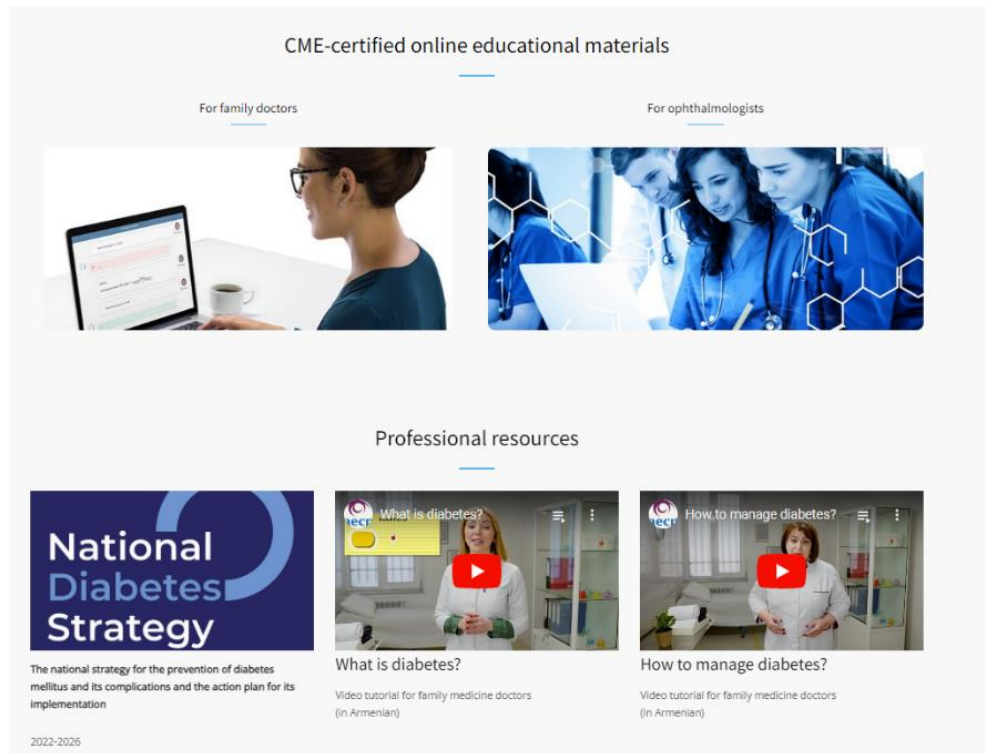


Figure 4. Image of the OTP for doctors, featuring CME tests, educational materials, and training videos (Armenian EyeCare Project, 2023)

As seen in Figure 4, an important feature of the medical professional side of the OTP is accredited tests on diabetes and eye care. Successful completion of these tests, within three attempts, enables professionals to earn continuing medical education (CME) credits for free. Medical professionals are required to obtain a certain number of CME credits every 5 years, depending on their profession (Chekijian, 2021). Given that these credits are mandatory for medical professionals, it is important that they have easily accessible training.

Bringing forth the results of the three years of work developing the platform, the AECPC country director, Dr Nune Yeghiazaryan, spoke in front of the World Health Organization's (WHO) online seminar on World Diabetes Day in the fall of 2020. Highlighting all the advancements made by the development of the platform and its original in person trainings, along with other AECPC initiatives, Dr Yeghiazaryan

was able to show the success of screening tens of thousands of Armenians and educating them about basic knowledge involving blindness related to diabetes (Dermejian, 2021). From this success and global recognition, the AECF was able to introduce portable fundus cameras that utilize a cloud-based Artificial Intelligence grading system that diagnoses and stores data for individual patients and notifies them if there is a need for a follow-up procedure. These cameras allow the AECF to better treat more patients, and the funding for them would not have been available without the success of the in-person diabetes training program and hard work from the AECF. Overall, receiving praise from the World Diabetes Foundation and World Health Organization shows the AECF's success and that the OTP should be developed further (Dermejian, 2021).

Chapter 3. Methodology

The goal of this project was to develop and implement recommendations to maximize the utilization of the Armenian EyeCare Project's diabetes online training platform (OTP) based on the needs of the target audiences. To better understand the project and complete the goal, the following objectives have been developed:

1. Identify the needs of potential users and target audiences currently underutilizing the OTP through interviews and focus group discussions.
2. Develop recommendations to maximize OTP usage among identified target audiences and potential users.
3. Implement recommendations to increase the user base and online presence of the OTP.
4. Analyze data on usage before and after implementation of the recommendations.

The following chapter describes the methods developed to understand the needs of the OTP target users, develop and implement recommendations for the OTP to maximize its utilization, and how the results of the recommendation implementation were assessed.

3.1 Identify Needs of Potential Users Through Interviews and Focus Group Discussions

The first objective was to identify the needs of potential users and target audiences currently underutilizing or not utilizing the OTP through interviews and focus group discussions. Under the guidance of the AECP, two main target audiences of the OTP were identified: medical professionals and people with diabetes along with their caregivers. These groups subsequently participated in interviews or focus group discussions, respectively, to understand how the OTP can be used to meet the needs of these groups and effectively promoted to them. The insights gathered from the interviews and focus group discussions provide a solid foundation for developing targeted recommendations to promote the

online training platform. By analyzing common themes that are brought up by participants, the platform can be promoted in a way that effectively supports both patients and medical professionals.

3.1.1 Interviews with Medical Professionals

Medical professionals are a significant target user of the OTP. Family medicine doctors are of the highest priority to the AECP as they are directly involved in gaining knowledge about diabetes and helping spread awareness to their patients. Based on the AECP's experience in working with clinics in Armenia, family medicine doctors are often the first contact for people with diabetes, especially in communities outside of Yerevan. Practicing family medicine doctors and endocrinologists across Armenia were chosen by the AECP for interviews to comment on their experiences with diabetes, diabetic eye care treatment, utilization of training platforms, interactions with the OTP, and suggestions for its enhancement. The AECP reached out to a network of doctors in Armenia whom they have worked with previously, and these doctors volunteered for interviews about the OTP. Prior to individual interviews, during the second week of the project, the team conducted an informational session via Zoom with all participating doctors to familiarize them with the OTP, so that they can provide more informed feedback. Following the informational session, during the second through fourth weeks of the project, individual interviews were conducted with each doctor over Zoom. Both the informational session and interviews were conducted in Armenian, and the questions and participants' responses were translated by the team.

These interviews served as a vital source of information to ensure a deeper understanding of the unique needs and perspectives of doctors regarding the OTP, facilitating the collection of targeted suggestions and ideas for enhancement of the OTP. Recognizing the potential for ethical considerations, the project was approved through WPI's Institutional Review Board (IRB), and the team obtained informed consent forms from each doctor, to ensure the participants understood the purpose of the interview and the use of their responses. Additionally, it was emphasized that the interview can be

stopped at any time and all responses will be kept confidential. A copy of the informed consent form and IRB project approval can be found in appendices A and B, respectively.

A list of interview questions was provided to the participants before the interview to facilitate transparency and comfort. A sample of the questions can be found below, and a full copy of the questions is available in Appendices C and D.

1. Can you briefly describe your experience and involvement in managing patients with diabetes?
2. In your opinion, what are the primary concerns or needs of individuals living with diabetes or their caregivers regarding diabetes?
3. Can you describe your previous experience with online resources or platforms related to diabetes or diabetes-induced eye complications?
4. What factors do you think would motivate medical professionals like yourself to engage with an online training platform focused on diabetes?
5. Are there any specific features or resources that you believe would be particularly appealing to medical professionals?

Together, these questions were used to provide insight into the medical professional's experience with diabetes treatment and education, specifically focusing on online resources and suggestions for improvements to the OTP.

3.1.2 Focus Group Discussion with People with Diabetes

The second target audience of the OTP is people with diabetes, their family members, and caregivers. Focus group discussions were conducted with this target audience to understand their use of the OTP and suggestions for improvement and promotion of it. Through engaging in focus group discussions with them, the team was able to ask about their general knowledge of diabetes, how it affects them in daily life, and how they seek resources to learn more about it. Similar to how the doctors were recruited for interviews, the AECF reached out to their network of people with diabetes that they

have previously worked with via Viber for volunteers to take part in the focus group. People with diabetes also recruited their family members or caregivers. Prior to the focus group discussions, during the second week of the project, the team conducted an informational session via Zoom with all participants to familiarize them with the OTP, so that they can provide more informed feedback. Following the informational session, focus group discussions were conducted during the third and fourth weeks of the project via Zoom and in person, since participants lived across Armenia and were not all local to Yerevan. Both the informational session and focus group discussions were conducted in Armenian, and the questions and participants' responses were translated by the team.

The focus group discussions offered crucial perspectives to improve the OTP's relevance and effectiveness, facilitating the development of recommendations to promote the OTP to people with diabetes and their families. As with the interviews, there is the potential for ethical concerns. Informed consent forms were filled out by all participants to ensure clarity regarding the focus group's purpose and the use of participants' responses. Participants were given the opportunity to leave the focus group at any time, and their responses remained confidential. The informed consent form and IRB project approval can be found in appendices A and B, respectively.

A list of focus group discussion questions was provided to all participants beforehand to facilitate transparency and comfort. A sample of the questions can be found below, and a full copy of the questions is available in Appendices E and F.

1. How do you usually seek out information regarding diabetes?
2. Have you ever spoken to a doctor about diabetes? If so, what kind of doctor and what resources did they provide you with?
3. Have you ever used online resources to learn more about diabetes and other issues surrounding it?

4. What factors around you would influence you to utilize online resources to learn more about diabetes and its revolving issues?
5. What topics were not covered in the OTP or ones that you wanted to learn more about?

Together, these questions were used to provide insight into the participants' experience with diabetes treatment and education, specifically focusing on online resources and suggestions for improvements to the OTP and its utilization among people with diabetes and their caregivers.

3.2 Methods for Developing and Implementing Recommendations for OTP Promotion

The second and third objectives of the project were to develop and implement recommendations to promote the OTP. Data and insights from the interviews and focus group discussions were used to develop effective recommendations to promote the OTP to medical professionals and people with diabetes. Recommendation development involved considering themes that come up regarding how people find information online, what people need from an OTP, and any recommendations that were suggested during our conversations. Themes surrounding suggestions or difficulties with the OTP were considered within the two groups (medical professionals and people with diabetes), but also common themes across the two groups. These findings were used to gain a better understanding of:

People's Preferences for Information Sources

Utilized findings from qualitative data collection to identify resources and sources that both patients and providers utilize, or could utilize, for information on diabetes and eye care. In addition, the insights provided us with information on the most effective channels and platforms where the project can reach its potential audience.

Barriers to Adoption

Determined the issues and challenges that the users experience with the OTP system and identified the factors impeding the platform engagement, such as lack of awareness, finding no information about such a program when searching for it, etc.

Engagement Motivation

Examined the factors that would motivate participants to engage with the OTP and understand the perceived benefits or value proposition of the program from the perspective of the target audience. This exploration aided in determining the types of content that can be recommended to keep the audience engaged.

In addition, an analysis of similar online training platforms was conducted to determine the general practices and trends in the field. By examining both direct and non-direct competitors' offerings, features, user experience, and promotion strategies, the team identified prevailing approaches and benchmarks in the market. Analysis was performed using Semrush, a website that allows people to see user traffic to any website for free. Semrush was used to understand which strategies each website is using to increase the amount of traffic. This analysis provided valuable insights into the most effective promotional strategies, consumer preferences, and general industry standards. Semrush was also used to develop a list of keywords for search engine optimization. Keywords are words or phrases added to a website to improve the searchability of the website and the information on it. Keywords for the OTP were modeled after the success of similar online platforms, as shown by Semrush.

Results were utilized to develop effective recommendations to promote the OTP. Recommendations for OTP promotion was grounded in data-driven insights derived from the interviews, focus group discussion, and competitor analysis. The recommendations were evidence-based and aligned with the needs and preferences of the target audiences of the OTP. Recommendations that were able to be implemented in the span of four weeks were provided to the AECF and implemented

during weeks three and four of the project. A guide outlining all the recommendations, including both short term recommendations that were implemented, along with longer-term recommendations for the AECF to implement, was also developed and provided to the AECF.

3.3 Measuring Recommendation Impact

A key aspect of the project involved quantifying and providing the AECF with empirical data regarding the recommendations' effectiveness. This was achieved using Google Analytics, a free service provided by Google designed to track a multitude of various user interactions on websites (Chen et al. 2020). The AECF established a Google Analytics account for the OTP to access important insights about the website's performance, including overall traffic, number of users, user demographics (including age, gender, and location), new versus returning users, and user engagement metrics (Chen et al. 2020). Google Analytics offers intuitive data visualization tools, allowing us to better understand user trends over time. The evaluation of the recommendation effectiveness focused on the metrics offered by Google Analytics, such as number of users and the pages that users visit. Google Analytics was selected to measure the impact of our recommendations due to the AECF's pre-existing account and its capability to sustain impact measurement after the project. To gauge the impact of the recommendations, the overall number of visitors to the OTP, along with the number of new visitors was tracked weekly for any changes on Google Analytics. Demographic information to assess the reach among target populations was also monitored.

Along with analysis of the number of OTP users and web traffic, a guide on how to monitor OTP utilization over time using Google Analytics and account creation metrics was developed and provided to the AECF. The guide is written in English and contains information on the most important metrics to the AECF, allowing them to understand their userbase and areas to expand the OTP to. This not only facilitated the assessment of the recommendations' impact but also served as a valuable resource for future promotional strategies.

Chapter 4. Research and Analysis

The project's overall goal was to enhance the AECP's online training platform's use and increase awareness among medical professionals and people with diabetes. Through discussions with the AECP, interviews with doctors, and focus group discussions with people with diabetes and their families, the team developed and implemented recommendations to promote the OTP and increase its usage among target audiences.

4.1 Results from Interviews and Focus Group Discussion

The first objective of the project was to identify the needs of potential users and target audiences currently underutilizing the OTP. Interviews with medical professionals and focus group discussions with people with diabetes and their caregivers were conducted to better understand the needs of these groups from the OTP. Each participant was asked questions about their general understanding of diabetes and diabetic eye care, their experience with the OTP, and what changes can be made to the OTP to improve its utilization. Table 1 summarizes information regarding the doctors who were interviewed, their profession, and the location where they practice.

Table 1. Information about medical professionals interviewed, their profession and place of work

Profession	Location (Town, Province)
Family Medicine Doctor	Vardablur, Lori
Endocrinologist	Kapan, Syunik
Endocrinological Nurse	Kapan, Syunik
Endocrinologist	Hrazdan, Kotayk
Endocrinologist	Yerevan
Family Medicine Doctor	Dzoragyugh, Lori
Family Medicine Doctor	Arevatsag, Lori

As seen in Table 1, the team interviewed both family medicine doctors and endocrinologists throughout Armenia. The participants were from four different regions in Armenia. All interviews were conducted over Zoom in Armenian by the Armenian team members. The notes from the interviews can be found in Appendix G. During the interviews, the team took notes on the participants responses to the questions and discussions about the OTP. These notes were then analyzed for common themes or suggestions brought up by participants. One common theme that the team noted from the interviews is that medical professionals emphasized the importance of professional development and access to up-to-date resources to enhance their ability to provide effective guidance. They highlighted the rapid change of pace in diabetes care and the need for ongoing education to keep abreast of the latest research and treatment strategies. They also highlighted the need for simple and actionable information they can give to their patients, especially regarding diet and lifestyle changes.

Two focus groups with people with diabetes and their caregivers were also conducted to better understand their needs from the OTP. Table 2 presents an overview of the participants engaged in the focus group discussion, along with details regarding their residential location and the meeting format.

Table 2. Information about focus group discussion participants, location, and the meeting format

Total Participants	Participants with Diabetes	Caretakers	Location	FGD Format
9	6	3	Vardablur, Lori	Zoom
4	3	1	Yerevan	In-person

As seen in Table 2, the team conducted focus group discussions with both people with diabetes and caretakers, but there were less caretakers than people with diabetes. The focus group discussion with participants in Lori was over Zoom, and the discussion in Yerevan was in person. The focus group discussions were in Armenian and run by the Armenian team members. The notes can be found in Appendix H. Similar to the interview analysis, the team took notes on the focus group discussions and analyzed them for common themes brought up by participants. A prominent theme from the focus

groups was the call for content with more accessible and appropriate physical activities tailored to rural environments. Participants emphasized the need for exercise options that do not require specialized facilities, such as swimming pools, which are often unavailable in village settings. Patients and their families also focused on the practical aspects of managing diabetes daily. They expressed a desire for simple, actionable advice that could be easily integrated into their daily routines, emphasizing the importance of physical activity and dietary management.

Throughout the course of the interviews and focus group discussions, several key themes emerged across both formats, which revealed invaluable insights into the daily challenges faced by patients and the healthcare professionals who support them. Both patients and healthcare providers highlighted the challenges of dietary management, particularly in the face of widespread misinformation. Patients shared experiences of receiving conflicting advice about what foods are considered 'safe' for diabetes management, leading to confusion and frustration. This issue was further complicated by the plethora of information available online, not all of which is reliable or evidence based. Healthcare professionals acknowledged this challenge, noting the critical role they play in dispelling myths and providing clear, accurate dietary guidance. The interviews and focus group discussions also underscored the effectiveness of visual aids such as posters or pamphlets and the use of social media for promotion of the platform. Posters and booklets placed in doctors' offices can serve as reminders of the resources available through the platform, capturing the attention of both healthcare providers and patients during visits. Additionally, creating and sharing content through social media groups, particularly those frequented by medical professionals and diabetes communities, can significantly enhance the platform's visibility. Encouraging healthcare professionals to share their experiences and successes using the platform within their networks can broaden the platform's visibility and reach a wider audience.

The analysis of both interviews with medical professionals and focus group discussions with people with diabetes and their caregivers reveal invaluable insights into developing effective recommendations to maximize utilization of the OTP. Discussions with medical professionals underscore the necessity for accessible professional development resources and up-to-date resources for patients regarding diabetes care and diet. Similarly, the focus group discussions revealed the demand for more relatable content, especially for rural areas, and the need for clear, actionable guidance. By addressing the identified needs and preferences of both medical professionals and people with diabetes, the team was able to integrate these insights into recommendations to promote the OTP among these target audiences.

4.2 Analysis of Similar Online Training Platforms

To better understand the current state of educational resources and similar platforms available to the target audiences of the OTP, the team conducted an analysis of other online training platforms and diabetes educational resources available, including their audiences, traffic to the platform, and search engine optimization. This analysis helps inform the recommendations for promoting the OTP by better understanding what similar platforms do and how they succeed. As demonstrated in sections “2.3 Online Training Platforms for Eye Care” and “2.4 Gaps in Online Training Platforms”, many of these resources are available mainly in English, and focus on an American or European audience. This means that there is a need for an Armenian specific diabetes resource. The OTP fills this gap by providing information in Armenian, Russian, and English, and provides information that is specific to Armenian lifestyle and culture. The recommendations for the OTP promotion should highlight the language options and accessibility of the OTP.

To further understand the demand for online platforms which educate doctors and those interested in learning more about diabetes, the website analytics for the Prevent Blindness Foundation and the

London School of Hygiene and Tropical Medicine online training platforms were analyzed. Analysis was performed using Semrush to understand which strategies each website is using to increase the amount of traffic. The Prevent Blindness Foundation’s platform is a United States based platform that is specifically designed to educate people about diabetes-related eye diseases, such as retinopathy, glaucoma, and cataracts, and covers methods for preventing vision loss and promoting eye health, and can be found at the following address, <https://preventblindness.org/diabetes-and-your-eyes/> (Prevent Blindness Foundation, 2023). Figure 5 shows the number of organic traffic to the platform in the past 2 years, along with the number of keywords for the platform.

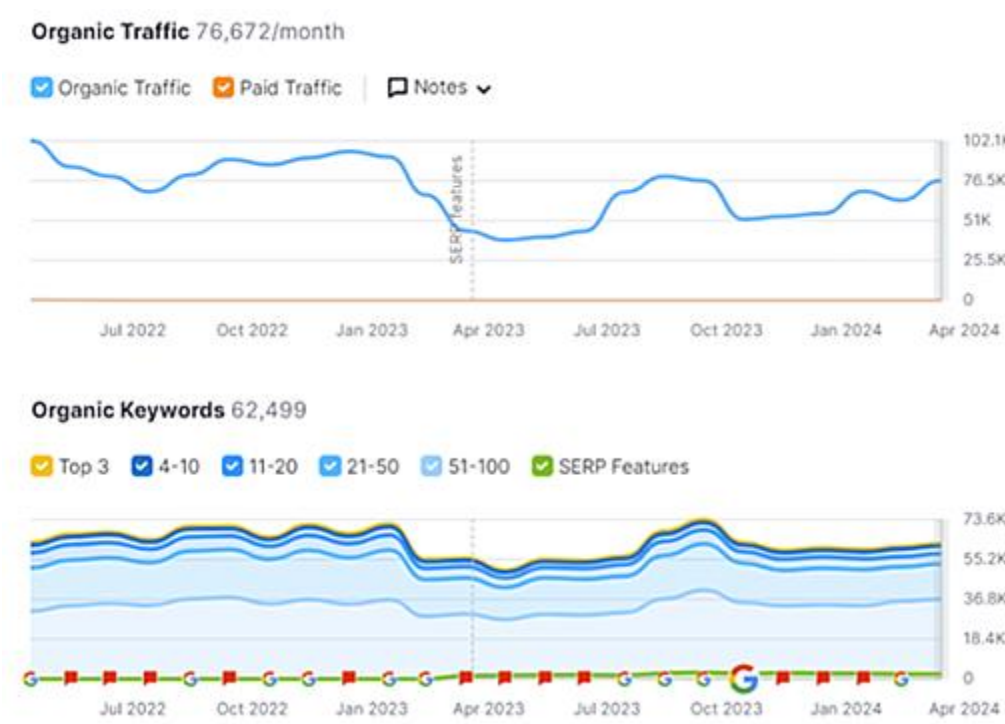


Figure 5. Semrush analytics showing the website traffic and keywords for the Prevent Blindness

As seen in Figure 5, the platform has over 65 thousand visitors per month worldwide, with 63% of those visitors from the United States. The platform also uses over 63 thousand organic keywords. These are words which are used in attracting free traffic through search engine optimization. Keywords can be any word or phrase on a website that a user might use in a web search. Keywords are ranked in terms of their position in the search results. The higher a keyword ranks, the more visible it is to users, allowing

the website to receive more traffic. While most of these keywords will not be searched by users, it is important to analyze the top keywords present on the platform. The most significant success for the platform comes from targeting the 21-50 and 51-100 ranked keywords. Targeting lower ranked keywords means there will be less websites to come up when searching for that word, thus proving a successful strategy if it is a more specific industry, such as a program to educate people about diabetes.

The other platform that was analyzed was the London School of Hygiene and Tropical Medicine's online training platform, which can be found at the following address, <https://www.lshtm.ac.uk/study/courses/short-courses/free-online-courses/diabetic-eye-disease>. This platform is an online course in which participants gain an understanding of diabetic eye disease and its management, with a focus on collaborative efforts between health teams and individuals with diabetes to reduce the risk of vision loss and blindness. The course covers important aspects, such as natural history, epidemiology, and complications of diabetes (London School of Hygiene & Tropical Medicine, 2018). Figure 6 shows the number of organic traffic to the platform in the past 2 years, along with the number of keywords for the platform.

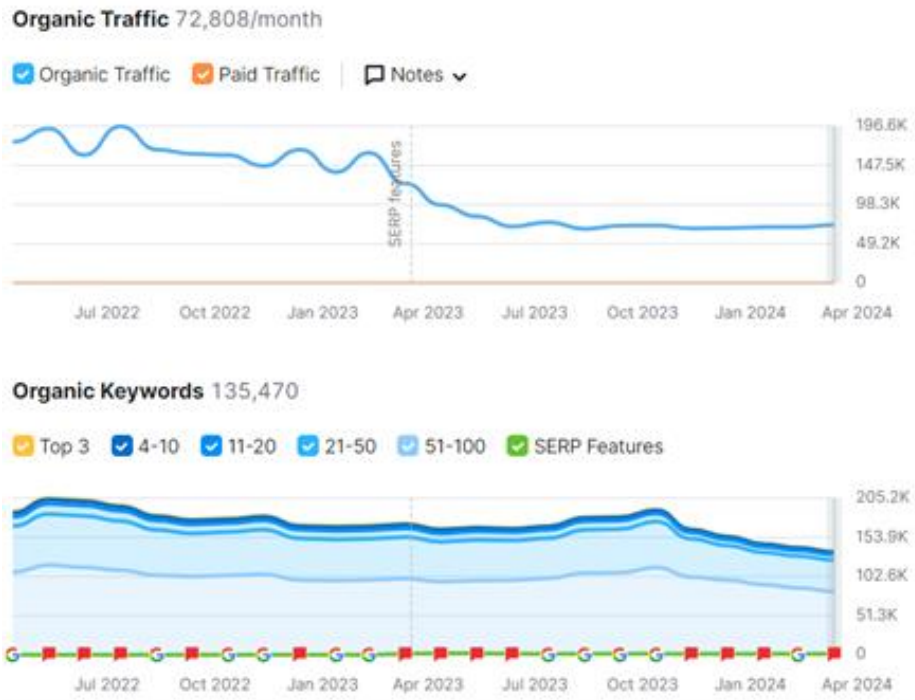


Figure 6. Semrush analytics showing the website traffic and keywords for the London School of Hygiene and Tropical Medicine’s website

As seen in Figure 6, the website has over 72 thousand visitors per month worldwide, with 44% of those visitors from the United Kingdom. The platform also uses over 135 thousand keywords, which helps promote the website for search engines and ensure more people can easily search for and find the platform.

Both the Prevent Blindness Foundation and London School of Hygiene and Tropical Medicine’s analytics show that they receive the most traffic through targeting the 21-50 and 51-100 ranked keywords. While the OTP will not be directly competing with these platforms for visitors in Armenia, these analytics show the importance of keywords. Search engine optimization recommendations for the OTP can be modeled off the success of these two platforms and the number of keywords and visitors that they have. The analysis of these similar platforms reveals that the team’s recommendations for search engine optimization should target more specific and lower ranked keywords, opposed to higher ranked keywords that are less specific to the OTP.

4.3 Recommendations for Promotion of the OTP

The second objective of the project was to develop recommendations to maximize OTP usage among identified target audiences and potential users. The following recommendations were developed based on the insights from the interviews, focus group discussion, analysis of similar OTPs, and discussions with the AECF. The recommendations are divided into two sections, the first section is short-term recommendations that can be implemented during the IQP project. The second section is longer-term recommendations that can be implemented by the AECF in the future. All the recommendations aim to increase the number of users of the OTP, either by increasing the website visibility and searchability, or promoting the OTP to people and increasing awareness and accessibility of the platform and its resources. The recommendations that involve posting social media content or sending messages to people should be written in Armenian. However, the English version of these messages is also included in the recommendations. The Armenian translation of all messages and relevant content is available in Appendix K. Recommendations 4.3.1 through 4.3.7 are short-term recommendations, and sections 4.3.8 through 4.3.17 are the long-term recommendations.

4.3.1 Link the OTP to the Main AECF Website

Users have expressed difficulties in finding the OTP and are often only able to access it through specifically searching for it online or being sent a link to the platform. The OTP is also not currently mentioned on the main AECF website. On the main AECF website, there is a section titled "Diabetic Eye Disease" (<https://eyecareproject.com/about-the-eye/eye-disease/diabetic-eye-disease/>). On this page, a link to the OTP should be added, so that people looking for information from the AECF about diabetes and diabetic eye disease can easily access the OTP and get more information.

4.3.2 Promote the OTP on the AECF's Social Media Accounts

The AECF has Facebook, Instagram, X, and YouTube accounts, of which they regularly post on Facebook and Instagram. On Facebook they have over 8.7 thousand followers, and over one thousand

followers on Instagram. The AECP often posts about work they are doing in Armenia and different programs they run. On Facebook and Instagram, a post should be made about the OTP, briefly detailing the purpose of the platform, and including a link in the caption to the OTP. During interviews and focus group discussions, participants expressed that they use Facebook as their primary social media platform. Based on this and the experience the AECP has had with doctors and patients, Facebook should be the main platform for the AECP to promote the OTP on. Since the AECP already has a following on these platforms and they post about other programs they run, this should help promote the OTP and allow more people to know about the platform.

4.3.3. Promote the OTP through the AECP's Viber Groups

Viber is an instant messaging platform that is commonly used in Armenia. The AECP maintains two Viber groups of people they have previously worked with or given medical care to. One group is made up of medical professionals and the other is made up of people with diabetes and their family members. These groups have 50 and 70 members, respectively. Since all the members of the Viber groups have previously worked with the AECP, they will already be familiar with the quality of work and care that the AECP provides and hopefully willing to visit the OTP. The AECP should send a message in Armenian about the OTP to both groups, briefly detailing the purpose of the platform and including a link to the OTP. The message to the medical professionals group should highlight the continuing medical education certification and medical resources. The message to the group of people with diabetes should highlight the educational resources regarding diabetes and proper management. The following are the messages the AECP should send in the Viber groups:

Viber message for patients in English:

Dear individuals managing diabetes,

We're reaching out to inform you about a valuable resource: an online training platform created by the Armenian EyeCare Project specifically for those navigating life with diabetes.

This platform offers a wealth of resources, including expert advice and practical tips aimed at supporting you in effectively managing your condition. You can access the platform here:

<https://dmtool.aecp.am/for-patients/> Take advantage of this opportunity to gain valuable insights and enhance your understanding of diabetes management. Remember, you're not alone in this journey.

Viber message for medical professionals in English:

Dear Medical Professionals,

We're excited to inform you about a new resource developed by the Armenian EyeCare Project: an online training platform designed to continue medical education while providing an opportunity to obtain CME credits. This platform offers a comprehensive array of resources, including expert insights, self-assessments, and practical guidance tailored to support you in providing optimal care for patients with diabetes. Access the platform here: <https://dmtool.aecp.am/for-doctors/>

Stay up to date on the latest developments in diabetes management and equip yourself with the knowledge and tools necessary to deliver high-quality care to your patients. Thank you for your dedication to improving patient outcomes in diabetes care.

4.3.4 Update the link in the YouTube Video Descriptions

All the videos that are available on the OTP are posted on the YouTube account “AECP Armenia Office” (<https://www.youtube.com/@aecparmenia>). However, the bio for this account currently links to <https://www.eyecareproject-armenia.com/> which is the first version of the OTP and is no longer used by the AECP. The AECP should update the YouTube channel’s bio so that it links to the current version of the OTP. The bio should also be updated so that it directly says “Armenian EyeCare Project” and not just AECP. Furthermore, the individual descriptions on the YouTube videos should be updated so that they include a link to the OTP and information about the platform. This ensures that if a person finds the videos on YouTube and not through the OTP, they are able to easily find and access the OTP for even

more resources. This also helps with search optimization since users can search for the phrases “AECF” or “Armenian EyeCare Project” and easily find the channel.

YouTube description in English:

This video comes from an online training platform created by the Armenian EyeCare Project for people with diabetes, their caretakers and medical professionals. You will find informative videos and reading materials made by doctors there. To access the platform, click on this link: <https://dmtool.aecp.am>

4.3.5 Create a Facebook Page for the OTP

The AECF should create a Facebook Page for promoting the OTP and providing more information about the platform to use it. There will be instructions on how to find the OTP, create an account, navigate the platform, and take advantage of all the resources. The page will be for both medical professionals and people with diabetes and their families. Although the page will center around the OTP, it will still allow people to create a community about diabetes and share resources and get advice from medical professionals. After the team’s project has been completed, the AECF will moderate and maintain the page. An advantage of this Facebook Page is that it will be in Armenian (and Russian or English if people choose to post in those languages). A Facebook page was selected because the AECF is already familiar with using and posting to Facebook pages. Additionally, a Facebook page is open to anyone, and does not require moderation by the AECF. Unlike a Facebook Group which requires moderation and for people to be accepted into the group before they can access the information. Currently there are not many Facebook pages in Armenian for diabetes, so this page should stand out and help further promote the OTP. The page can also be advertised to the Viber groups that were previously mentioned in recommendation 4.3.3. The team has developed four potential posts for the Facebook page.

1. Introduce the platform. This post should outline what the OTP is, how to find the platform, and what information is available on the platform. Include a screenshot of the OTP and a link to the OTP.
2. Highlight the CME credits. Appeal to medical professionals by explaining how they can obtain CME credits for free by successfully completing the assessments. Include a screenshot of the OTP for medical professionals, and a link to the OTP.
3. Highlight the resources available for patients. Give an overview of the content available to patients, such as videos, handouts, and articles about diabetes and diabetic eye care. Include a link to the platform.
4. Share one of the videos for patients. Post one of the videos from the OTP and give a short description of the video. Include a link to the platform. One of the videos about lifestyle or exercise will probably be best for the post, since during focus group discussions participants brought up wanting to see more information on these topics.

Viber messages to promote the page

Hello, dear doctors.

We have created a Facebook group where we will share videos and useful information about diabetes and tips for managing it effectively. Please join the group and spread it among your patients as well. 😊

Link: <https://www.facebook.com/profile.php?id=61558207125536&mibextid=LQQJ4d>

Hello, dear patients.

We have created a Facebook group where we will share videos and useful information about diabetes and tips for managing it effectively. Please join the group and share it with others who have diabetes.

Link: <https://www.facebook.com/profile.php?id=61558207125536&mibextid=LQQJ4d>

(<https://www.facebook.com/profile.php?id=61558207125536&mibextid=LQQJ4d>)

4.3.6 Advertise to the AECP's Facebook Group for Medical Professionals

The AECP runs a Facebook Group called Institute for Healthcare Improvement Open School the AECP Chapter(https://www.facebook.com/groups/305310666545193/notify_id=1711440075736527¬ify_group_r2j_approved&ref=notify). Currently, this group has 132 members, who are medical professionals across Armenia and use the group to learn about resources, connect with others, and get professional help. The AECP should create a post in the group, briefly detailing the purpose of the OTP and including a link to it. The message should also highlight the CME certification and educational resources available. The message could potentially also include information about the Facebook Group for the OTP (described in recommendation 5), but it should focus on promoting the OTP.

4.3.7 Create an Instruction Manual for using the OTP

One issue about the OTP that has arisen from discussions with users is that they do not know how to find the platform, navigate the site, or create an account. The team will create a short instruction manual on how to find and use the platform. The manual will mostly contain screenshots from the OTP, and instructions will be written in Armenian, and English. The manual will be provided to the OTP Facebook Group and can also be sent to other groups that the AECP advertises the OTP to (Viber groups and Institute for Healthcare Improvement Facebook Group). The instruction manual can be found in Appendix I.

4.3.8 Encourage Medical Professionals to Promote the OTP to their Patients

Word of mouth and people discussing the OTP with others will be a valuable way to promote the platform in the long run. One way to do this is to encourage medical professionals to promote the OTP to patients who wish to seek out more information on diabetes. This could be done after a patient has been diagnosed with diabetes or to teach them more about diabetes and a healthy lifestyle before developing it. This could also be done by having doctors contact their patients via Viber about the OTP and directly sending them a link to the platform to get more information about diabetes. However, to do this effectively, medical professionals must know about the OTP in enough detail to properly introduce it

to the patient. By promoting the OTP to medical professionals in the recommendations above, this should hopefully be sufficient to spread the word about the OTP to medical professionals and people with diabetes. The AECF can continue to inform the medical professionals they work with about the OTP and encourage the medical professionals to inform their patients and other professionals about the platform.

4.3.9 Advertise the OTP on the AECF Promotional Material

The AECF has diabetes-related posters and pamphlets they hand out at other programs and events they host. The AECF should include a QR code to the OTP with a brief description of the OTP and what information is on it. This would help further promote the OTP to people in person who are working with the AECF or getting care from them. Furthermore, including the relevant information about diabetes from the OTP on posters and pamphlets helps to make information more accessible for those with limited technology use. In the focus group and interviews, people brought up the concerns of patients not having the ability to access and use the OTP on their own. Transferring information from the OTP to a physical form, while also allowing patients or their families to access the OTP if they would like more information should help resolve this issue. Pamphlets also allow people to share information about the OTP with others, such as family members or caregivers, allowing the OTP to reach even more people.

4.3.10 Write a Blog Post about the OTP on the AECF Blog

The AECF runs a blog section of their website (<https://eyecareproject.com/blog/>) on which they promote the work that they are doing and different programs that are being run. When the platform was first in development, the AECF wrote a story about the OTP. However, this story is out of date and does not include a link to the current OTP. The AECF should write a story about the development of the OTP and its release to the public, as well as a redirect link on the blog straight to the OTP. The blog post should highlight the educational resources on the platform, along with CME credits that medical professionals can obtain. Furthermore, it may be beneficial to advertise these blogs on other social media in order to build a larger online community surrounding the AECF.

4.3.11 Implement a Method to Track Engagement with Individual Videos on the OTP

On YouTube, channel owners can view video analytics including watch time, engagement, and track how each video performs. If the AECP wishes to further develop or promote specific aspects or topics of the OTP, they should use the analytics available on YouTube to see which videos are the most viewed. To understand which videos are the most viewed, the AECP can use their Google Analytics account to see which pages are visited the most. It may also be beneficial to add more information on the topics that are most viewed to provide more resources.

4.3.12 Implement Search Engine Optimization Strategies

Search Engine Optimization (SEO) involves optimizing the OTP to improve its online visibility and make it easier for users to find the platform through search engine results. While the previously described recommended changes to the OTP should improve the visibility of the platform, the AECP should implement further SEO strategies to make the OTP even easier to find through search engines.

Introduce keywords to the OTP

One strategy is adding words and phrases about diabetes, eye disease, and educational training keywords to the web pages. Another strategy is adding more on page information to the people with diabetes and medical professionals pages. Currently, most of the information on the OTP is either YouTube videos, or links to pdfs with handouts or textbooks. This means there is little information present on the web page and can be counted as a keyword for search engines. Adding some of the information as paragraphs, bullet points, or headings to the web pages should increase the searchability of the OTP. Implementing these changes should increase the number of people that can find the OTP through simple online searches, and don't have to specifically seek it out. This will increase the user base of the OTP beyond people the AECP has previously interacted with. The keywords should be in Armenian, both in Armenian characters and Latin characters, since it is most likely that Armenian users will be using those alphabets to search for the OTP. The following are examples of keywords that could be added to the OTP in English:

- Armenian EyeCare Project diabetes resources
- Online diabetes training platform
- Diabetes care training for medical professionals
- Diabetes education resources
- Practical diabetes guidance
- Continuing medical education
- Diabetic eye disease
- Online training platform
- Diabetes
- Insulin

URL improvements

The URL for the platform should also be updated to better describe what the platform is, the language the user is viewing the OTP in, and what page the user is on. Currently the URL is <https://dmtool.aecp.am/>. This URL does not describe what the OTP is and should be updated to reflect that it is a diabetes online training platform. Updating the URLs will

1) Enhance user experience:

A well-formatted URL structure helps to have the content in a logical and organized manner, aiding the users to navigate and locate the information faster (Krause, 2023).

2) Improve page rank:

URLs play a significant role in Google's ranking algorithm. As a result, this optimization will directly impact the website's visibility in search engine results (Krause, 2023).

The ideal URL structure is the following: protocol, domain name, and path format. For example, if a user is on the "For Patients" page, the URL should appear as follows: <https://www.diabetes->

platform.com/for-patients. The main URL of the website should also be updated. Instead of <https://dmtool.aecp.am> we suggest having <https://diabetes-platform.am>

Language Clarity

The content not translated into the user's selected language should be excluded from the content that the user is able to see. For instance, users expect to see resources only in Russian if they select Russian mode. Including Armenian language materials while the website is set to Russian mode can lead to confusion among users.

Changing Content Arrangement

The arrangement of the materials on the website should be changed, prioritizing a more logical order. The content could be grouped by topics, such as prediabetes and diabetes management, healthy lifestyle information, eye diseases, and successful projects. There can be a special section called 'What's New' or 'Recent' to show the newest stuff that has been added.

Meta Title and Description

The meta title and description are the name of the website and short paragraph about the website that appear as a search result. Well-written meta titles and meta descriptions can encourage organic visitors to click on the site, bringing more traffic to the website (Moz, 2023). Currently, the meta title and description for the OTP are not informative and enticing for new users. These should be updated to reflect the benefits and information available on the platform.

The Meta Title and Meta Description in English:

Online educational platform: all about diabetes.

Armenian platform about diabetes management, dietary behavior, and more. Free access to videos and reading materials made by doctors.

4.3.13 Promote the OTP During the AECP's Educational Programs

As part of their mission to educate people about diabetes and diabetic eye care, the AECP will be establishing 3 diabetes schools across Armenia. These schools will offer a 10-day training program for people with diabetes, teaching them what they need to know about diabetes care and management, lifestyle changes, and medications. During these training sessions, the AECP should promote the OTP and inform participants about the information it provides. The AECP could show some of the videos that are on the OTP, along with handing out pamphlets from the OTP, which should also have information on how to access the OTP. Promoting the OTP during these trainings will allow the AECP to reach even more users and give people with diabetes a way to access accurate information supported by the AECP after the trainings through the OTP.

4.3.14 Update the Textbooks that the OTP are Based on

The OTP is based on two textbooks authored by Drs. Roger Ohanesian and Marianne Shahsuvaryan, *Essentials of Ophthalmology* and *Eye Diseases*. These textbooks were published in 2007 and 2005, respectively. While most of the information in these textbooks is still relevant and valuable to medical professionals, the images and techniques mentioned in the textbooks should be updated to reflect the current practices in ophthalmology. Updating the textbooks will not only make the information more accurate, but also encourage people to use the textbooks since they will have up to date information.

4.3.15 Partner with Diabetes Organizations in Armenia

The AECP should partner with other organizations that focus on diabetes care in Armenia. Since these groups also have connections with medical professionals and people with diabetes and their families in Armenia, they will be able to promote the OTP to these people and increase awareness of the platform. These organizations may also have ideas to improve the platform and make it even more valuable for those using it. There are two main diabetes organizations in Armenia that the AECP could partner with. The first is The Armenian Association of Diabetes. This is a group of doctors that work to provide screenings and care to people with diabetes, while promoting education and healthy lifestyles.

The other organization is the Diabetic Children Association. This group focuses on providing care and educating children and their families about diabetes. Both organizations would provide valuable contacts for promoting the AECP and allow the OTP to reach more people.

4.3.16 Promote the OTP During Diabetes Week

In Armenia and around the world, people celebrate diabetes week in November by organizing events to promote diabetes awareness to the public. The AECP should participate in or organize events during this week to promote the OTP. This would help spread awareness of the platform and allow the AECP to connect with new people and organizations. During these events, the AECP can hand out pamphlets about diabetes that also include information about the OTP.

4.3.17 Understand the Promotional Channels used by Young People

Young people, including family members and medical students, are a valuable audience of the OTP that currently remains untapped. The AECP should conduct a survey to better understand the channels, such as social media or other online or in person platforms, that young people use to get information. These survey results can then help inform future promotion strategies for the OTP that target young people. The following questions are an example of the survey questions that could be asked:

1. Can you describe your experience with online resources or platforms as part of your medical education, particularly regarding topics related to ophthalmology or diabetes-induced blindness?
2. How do you typically seek out supplemental resources or materials to enhance your understanding of medical topics outside of traditional coursework?
3. How do you think integrating such a platform into your medical education could benefit you and your peers?
4. What specific challenges or barriers, if any, do you foresee in utilizing an online training platform for diabetes-induced blindness as part of your studies?

5. How do you think we could effectively promote the platform and encourage more medical students to utilize it as a supplemental learning resource?

4.4 Implementation of Recommendations

The third objective of the project was to implement recommendations to increase the user base and online presence of the OTP. Following discussions with the AECp, the short-term recommendations were implemented or a plan for implementation was established by the team and the AECp. Starting during the fourth week of the project, the team discussed their recommendations with the AECp, and devised ways to implement the recommendations. The team was responsible for developing the recommendations and any necessary messages, social media content plans, or materials needed for the recommendations. Since the team did not have access to the AECp's websites, social media pages, or Viber groups, the AECp was responsible for implementing the recommendations and sending out any relevant materials that the team developed. Through this collaboration, the team was able to implement recommendations 4.3.3 (Viber groups), 4.3.4 (YouTube videos), 4.3.5 (Facebook page), 4.3.7 (instruction manual), and started on 4.3.12 (SEO). The Facebook page that the team created can be found at the following address:

<https://www.facebook.com/profile.php?id=61558207125536&mibextid=LQQJ4d>. On this Facebook page, the team posted 3 posts about the OTP, highlighting what the platform is, how to access it, and features of the platform including the self-assessments and CME credits. The team also shared this page with the medical professionals and people with diabetes Viber groups. The team established clear plans with the AECp on how to implement the remaining short-term recommendations soon after the project was completed.

4.5 Analysis of Google Analytics Results

The fourth objective of the project was to analyze data on usage before and after implementation of the recommendations. Google Analytics was used to analyze the impact of the recommendations. The analysis entailed comparing the number of total users and new users to the platform since the start of the year, along with analyzing demographic information about the users and how users are finding the platform. With the following results, it is important to note that the team has also been accessing the OTP during analysis, and therefore increasing the number of users. Because of this, conclusions regarding an increase in the number of users cannot be reliably drawn. However, the following results outline what the AECP could expect to see and conduct a similar analysis of in the future after more recommendations have been implemented. Once more recommendations have been implemented, and more time has passed for these recommendations to be effective, the following analysis will be valuable for the AECP in understanding the impact of the recommendations on the platform. A comprehensive guide to using and analyzing Google Analytics was developed by the team and can be found in Appendix J.

First, the number of total users to the platform from September 1st, 2023, to April 27th, 2024, was analyzed. Figure 7 shows the trend in overall users of the OTP.

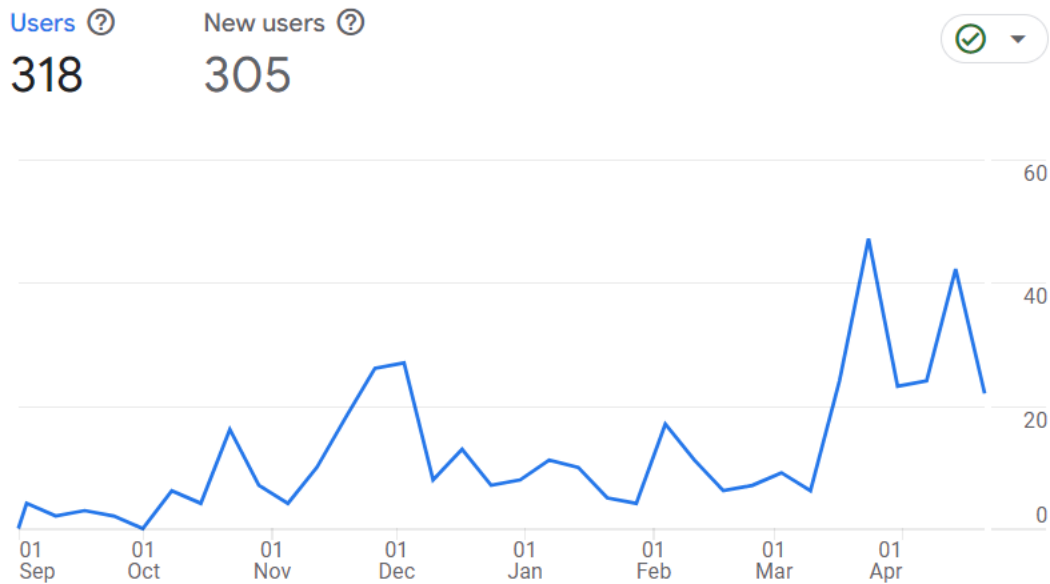


Figure 7. Graph from Google Analytics of total users to the OTP from September 1st, 2023, to April 27th, 2024

As seen in Figure 7, prior to March, there appears to be noise in the data and no consistent number of users. However, starting the week of March 10th, there appears to be a spike in the number of users to the platform. This is when the team started conducting interviews and focus group discussions and promoting the platform to people. Since the team was talking to target audiences about the platform, it is understandable that there are more people visiting the OTP during this time. Starting in April the team started implementing the developed short-term recommendations which may contribute to the increased number of users seen in April. The spike in early February may be because that's when the team got access to the OTP. So, the team started visiting the platform, along with the AECP members also visiting to show us how to use the platform. In the future, this metric and looking at total users and new users to the OTP will be valuable to the AECP in understanding how many users they have. It will also be valuable to see if specific recommendations that are implemented have an impact on the number of users.

Next, the team analyzed how the platform is obtaining new users. There are a few different ways new users are finding the OTP. The two most popular ways are direct and organic search. Direct search means that a user typed in the OTP URL or clicked on a link to the platform. Organic search means that a user found the OTP from a search engine result. Figure 8 shows a breakdown of how new users found the OTP.

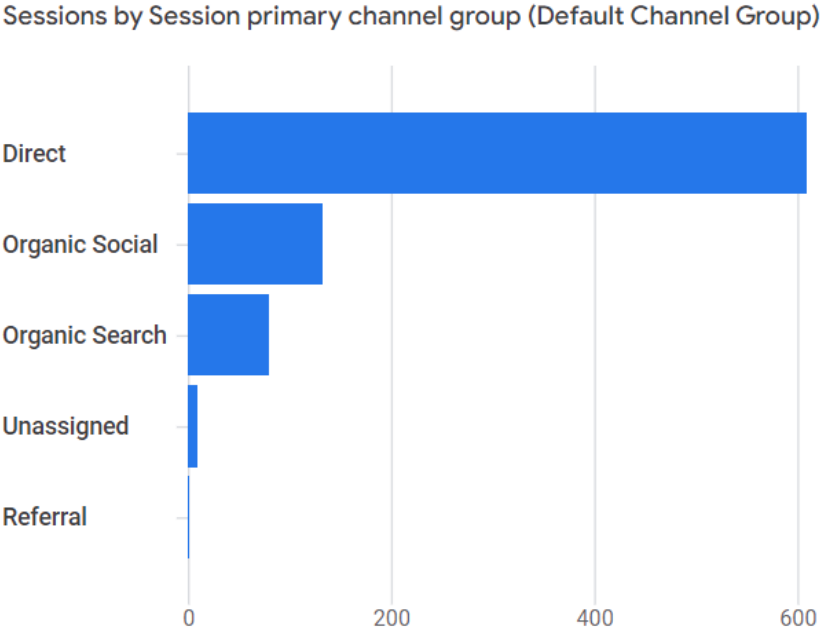


Figure 8. Google Analytics chart of how new users find the OTP from September 1st, 2023, to April 27th, 2024

As shown in Figure 8, the majority of users currently accessing the OTP do so through a direct search. This aligns with the recommendations the team implemented, since most of the recommendations center around sending the OTP to people and directly advertising the link in Viber and through social media. The team also sent the OTP to participants in both the interviews and focus group discussions, contributing to the number of direct searches. Once more recommendations have been implemented, this metric will be helpful in understanding how users are finding the OTP. This is especially valuable since many of the short-term recommendations that were implemented involve connecting with people

already in contact with the AECF. So, this metric will show if people outside of the AECF network are accessing the OTP.

Lastly, the team analyzed demographic information about OTP users, specifically where users are located. Since the OTP is available in Armenian, Russian, and English, the users should represent all three languages so that the OTP is used to its full potential. Figure 9 shows the countries that users have accessed the OTP from and the number users for each of those countries.

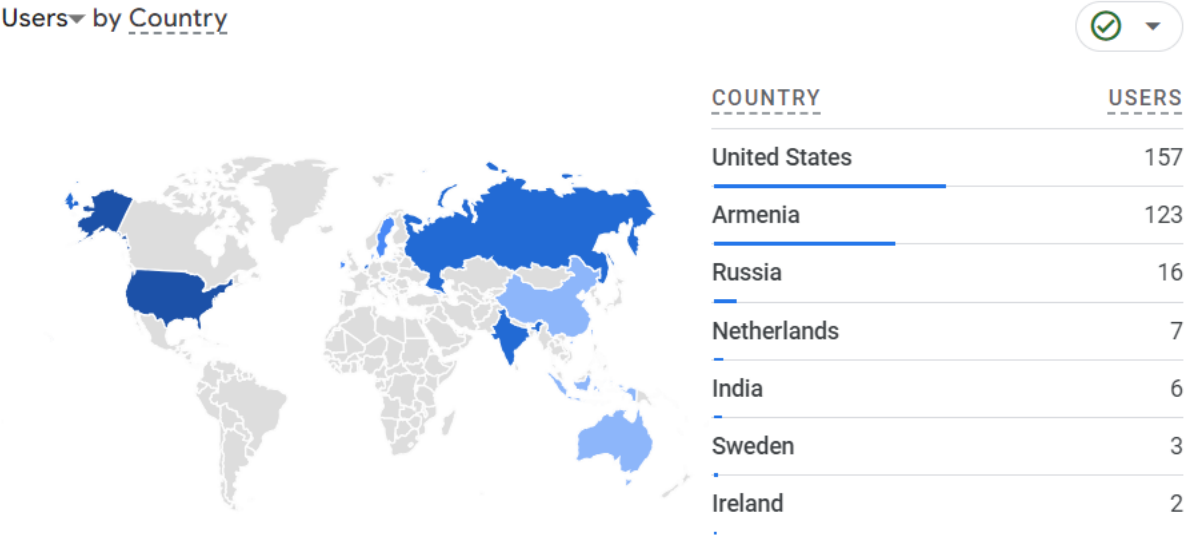


Figure 9. Google Analytics map of OTP users per country from September 1st, 2023, to April 27th, 2024

As shown in Figure 9, the top three countries with users of the OTP are the United States, Armenia, and Russia. Since the AECF wants users for all three languages that the OTP is available in, the United States, Armenia, and Russia should be the top three countries for the OTP. The AECF has an office in Armenia, so it is not unexpected that there are American users. However, in the future the AECF can monitor where users are accessing the platform and look for areas of growth and where the user base needs to be expanded.

Google Analytics is a powerful tool for understanding the users of the OTP, and a way for the AECF to measure platform utilization in the future. The AECF can continue to implement the recommendations

that the team has developed and use Google Analytics to see if there is an increase in users. Furthermore, the AECF can monitor how users are accessing the platform and from what countries. These results will show potential areas of growth for the platform beyond increasing the number of users. These preliminary results show that the number of Armenian and Russian users should be improved, along with the number of organic searches. The various recommendations outlined previously should help to do so, especially search engine optimization.

Chapter 5. Discussion and Conclusion

This project aimed to enhance the utilization of the Armenian EyeCare Project's online training platform for diabetes among medical professionals and the public. The team worked with the AECF to understand the needs of medical professionals and people with diabetes and their caregivers via interviews and focus group discussions. The team analyzed these conversations for common themes and insights gathered to provide a foundation for developing targeted recommendations to promote the online training platform. The interviews with medical professionals emphasized the importance of professional development resources, especially resources that highlight the quickly changing pace of diabetes care and information. These discussions also highlighted the need for simple and actionable resources that doctors can provide their patients with and will be appropriate for the region and community that the patients are living in. The focus group discussions with patients and their caregivers also highlighted the need for more accessible content and information that is easy to understand and apply to their daily lives. The OTP offers many of the resources that both medical professionals and people with diabetes and their caregivers are seeking, however, the OTP needs to be promoted to these target audiences in order to help them. By addressing the identified needs for reliable, accessible information on diabetes management and leveraging both traditional and digital channels to raise awareness, the OTP can effectively support both patients and medical professionals. Through these discussions and an analyze of similar successful online training platforms, the team was able to successfully develop and implement tailored recommendations to maximize the utilization of the Armenian EyeCare Project's diabetes online training platform.

The recommendations developed by the team are divided into two sections, the first section is short-term recommendations that can be implemented during the IQP project. These recommendations focus on increasing awareness of the OTP among medical professionals and people with diabetes and

their caregivers. The recommendations aim to make it easier to find the platform online by improving searchability, along with harnessing previous AECp contacts and promoting the platform through them and social media. The second section is longer-term recommendations that can be implemented by the AECp in the future. These recommendations also aim to improve the platform and its user experience. The recommendations also highlight the importance of in person promotion of the OTP, through both medical professionals by providing them with promotional materials, along with the AECp promoting the platform during their events. Lastly, an important long-term recommendation is search engine optimization. By implementing multiple search engine optimization strategies, the AECp will be able to improve the platform and make it easier for users to find and use the OTP. Overall, all the recommendations aim to increase the number of users of the OTP, either by increasing the website visibility and searchability, or promoting the OTP to people and increasing awareness and accessibility of the platform and its resources.

While the development of recommendations for the OTP was successful, the team encountered some limitations with the project. First being that members of the AECp attended most of the interviews and focus group discussions. This potentially impacted the results of these discussions, because participants may have felt uncomfortable giving honest feedback about the platform while members of the AECp were present. A second limitation is with the use of Google Analytics to measure the impact of recommendations. Since the team was also visiting the OTP throughout the duration of the project, the number of users is skewed to show more users than were meaningfully present. Because of this, the Google Analytics results cannot be directly used to measure impact of the recommendations. Rather, the team can provide a guide on how to use Google Analytics to analyze impact in the future once the team is no longer visiting the platform. Lastly, the team faced constraints on the time available to execute their short-term recommendations. Among these were recommendations such as posting on social media and updating the OTP and main AECp website. As these recommendations required

implementation by multiple members of the AECP, they weren't able to be realized within the project time frame. Despite these limitations, the team was still able to successfully develop short- and long-term recommendations and implement some of the recommendations for the OTP.

Following the development of the short-term recommendations, the team in conjunction with the AECP was able to implement some of the recommendations. The team developed all necessary materials for implementing the recommendations, including messages to Viber groups, social media content, plans for social media content, and the instruction manual. The team and the AECP worked together to implement the recommendations for messaging Viber groups, Facebook page, instruction manual, and started implementing search engine optimization, including improving the URL and introducing keywords. The team also established clear plans with the AECP on how to implement the remaining short-term recommendations soon after the project was completed. The team recommends that the AECP continue to implement both the short- and long-term recommendations that were developed in order to ensure the OTP can reach as many users as possible. Furthermore, the team recommends that the AECP continue to monitor the number of users to the OTP using Google Analytics. Specifically, the AECP should analyze the number of users, how users are finding the platform (direct vs organic search), and demographic information to better understand who is using the OTP and how.

To help with the implementation and long-term success of the platform and project, the team developed and delivered two guides to the AECP. The first is a recommendation guide that includes both short- and long-term recommendations for the OTP to increase utilization, available in chapter 4.3. The guide outlines what the recommendations are, how they should be implemented, and how the recommendations will help improve the utilization of the platform. The second is a guide to analyze the impact of recommendations using Google Analytics, available in Appendix J. These two guides will help the AECP to further improve the platform and ensure that the platform is able to reach and help medical professionals and people with diabetes and their caregivers across Armenia. This project and the

Armenian EyeCare Project's online training platform for diabetes could represent the substantial progress being made in Armenia towards addressing diabetic eye disease and enhancing the overall health of people all around the country.

Chapter 6. References

About Us. Armenian EyeCare Project. (2021, March 4). <https://eyecareproject.com/about-us/>

Andersen, J. K., Hubel, M. S., Savarimuthu, T. R., Rasmussen, M. L., Sørensen, S. L., & Grauslund, J. (2022). A digital online platform for education and certification of diabetic retinopathy health care professionals in the region of Southern Denmark. *Acta Ophthalmologica*, 100(5), 589–595. <https://doi.org/10.1111/aos.15123>

Armenian EyeCare Project. (2018, May 10). *Online training platform for ophthalmologists and Primary Health Care Providers*. Armenian EyeCare Project. <https://eyecareproject.com/online-training-platform-for-ophthalmologists-and-primary-health-care-providers/>

Babar, Z. U., Ramzan, S., El-Dahiyat, F., Tachmazidis, I., Adebisi, A., & Hasan, S. S. (2019). The Availability, Pricing, and Affordability of Essential Diabetes Medicines in 17 Low-, Middle-, and High-Income Countries. *Frontiers in pharmacology*, 10, 1375. <https://doi.org/10.3389/fphar.2019.01375>

Centers for Disease Control and Prevention. (2023, September 5). *What is diabetes?*. Centers for Disease Control and Prevention. <https://www.cdc.gov/diabetes/basics/diabetes.html>

Chekijian, S., Yedigaryan, K., Bazarchyan, A., Yaghjyan, G., & Sargsyan, S. (2021). *Continuing Medical Education and Continuing Professional Development in the Republic of Armenia: The Evolution of Legislative and Regulatory Frameworks Post Transition*. *Journal of European CME*, 10(1). <https://doi.org/10.1080/21614083.2020.1853338>

Dermenjian, A. (2017, November 15). *Diabetes program launched with World Diabetes Foundation grant*. Armenian EyeCare Project. <https://eyecareproject.com/diabetes-program-launched-with-world-diabetes-foundation-grant/>

Dermenjian, A. (2021, February 4). *AACP Country director speaks at WHO Webinar*. Armenian EyeCare Project. <https://eyecareproject.com/aecp-world-health-organization-diabetes-program/>

Diabetic retinopathy. Prevent Blindness. (2023, October 24). <https://preventblindness.org/diabetic-retinopathy/>

Giloyan, A., Harutyunyan, T., & Petrosyan, V. (2015). The prevalence of and major risk factors associated with diabetic retinopathy in Gegharkunik province of Armenia: cross-sectional study. *BMC ophthalmology*, 15, 46. <https://doi.org/10.1186/s12886-015-0032-0>

Jacot, A. (2023, September 13). *Medical information websites: Does it help or hurt patient care?*. Medical Professionals Reference. <https://www.empr.com/practice-management/medical-information-websites/>

Krause, E. (2023, December 12). *URL structure: Best practices for seo-friendly urls ' design powers*. Design Powers. <https://designpowers.com/blog/url-best-practices>

The Law Of The Republic Of Armenia. (2021, March 17). *On The Rights Of People With Disabilities*. The Law Of The Republic Of Armenia. <http://www.parliament.am/drafts.php?sel=showdraft&DraftID=12313&Reading=1>

London School of Hygiene & Tropical Medicine. *Diabetic Eye Disease: Building Capacity To Prevent Blindness*. Future Learn. <https://www.futurelearn.com/courses/diabetic-eye-disease>

Magliano DJ, Boyko EJ. (2021). *IDF Diabetes Atlas 10th edition*. International Diabetes Federation *Our Mission and History*. Prevent Blindness. (January 25, 2024). <https://preventblindness.org/our-history/>

Moz. (2023). *What are Meta descriptions and how to write them*. Moz. <https://moz.com/learn/seo/meta-description#:~:text=You%20can%20find%20your%20page's,within%20the%20page's%20metadat a%20settings>

Teo, Z. L., Tham, Y. C., Yu, M., Chee, M. L., Rim, T. H., Cheung, N., Bikbov, M. M., Wang, Y. X., Tang, Y., Lu,

Y., Wong, I. Y., Ting, D. S. W., Tan, G. S. W., Jonas, J. B., Sabanayagam, C., Wong, T. Y., & Cheng, C. Y. (2021). Global Prevalence of Diabetic Retinopathy and Projection of Burden through 2045: Systematic Review and Meta-analysis. *Ophthalmology*, *128*(11), 1580–1591.

<https://doi.org/10.1016/j.ophtha.2021.04.027>

U.S. Department of Health and Human Services. (2023, November 15). *Diabetic retinopathy*. National Eye Institute. <https://www.nei.nih.gov/learn-about-eye-health/eye-conditions-and-diseases/diabetic-retinopathy#:~:text=Diabetic%20retinopathy%20is%20an%20eye,at%20least%20once%20a%20year>

Welp, A., Woodbury, R. B., McCoy, M. A., & Teutsch, S. M. (2017). *Making eye health a Population Health Imperative Vision for Tomorrow*. National Academies Press. January 25, 2024,

<https://www.ncbi.nlm.nih.gov/books/NBK402367/>

World Health Organization. (2023, April 5). *Diabetes*. World Health Organization.

<https://www.who.int/news-room/fact-sheets/detail/diabetes>

Appendix A. Informed Consent Form

Informed Consent Agreement for Participation in a Research Study

Investigator: Greta Khandanyan, Leah Maciel, Nick Sirota, Nazeli Ter-Petrosyan

Contact Information: gr-aecp-d24@wpi.edu

Title of Research Study: Maximizing Utilization of Armenian EyeCare Project Diabetes Online Training Platform

Sponsor: Armenian EyeCare Project

Introduction:

You are being asked to participate in a research study. Before you agree, however, you must be fully informed about the study's purpose, the procedures to be followed, and any benefits, risks or discomfort that you may experience because of your participation. This form presents information about the study so that you may make a fully informed decision regarding your participation.

Purpose of the study:

The purpose of this study is to understand the potential users of the Armenian EyeCare Project's online training platform. We will use this information to develop recommendations to promote the platform.

Procedures to be followed:

Interviews and focus groups will be conducted in the participants' language of choice (Armenian or English). Questions will be provided to the participants beforehand. Interviews and focus groups will last approximately one hour. Audio of the interviews and focus groups will be recorded and transcribed.

Risks to study participants:

There are little to no foreseeable risks to the participants.

Benefits to research participants and others:

There are no benefits to the participants.

Record keeping and confidentiality:

Audio recordings of the interviews and focus groups will be kept, along with a transcript of the recordings. Records of your participation in this study will be held confidential so far as permitted by law. However, the study investigators, the sponsor or its designee and, under certain circumstances, the Worcester Polytechnic Institute Institutional Review Board (WPI IRB) will be able to inspect and have access to confidential data that identify you by name. Any publication or presentation of the data will not identify you.

Compensation or treatment in the event of injury:

No compensation will be given for participation in this research. You do not give up any of your legal rights by signing this statement.

Withdrawal from the Survey:

Should a participant wish to withdraw from the study after it has begun, they should tell the research team they wish to withdraw.

For more information about this research or about the rights of research participants, or in case of research-related injury, contact: gr-aecp-d24@wpi.edu

In addition, contact information for the IRB Manager (Ruth McKeogh, Tel. 508 8316699, Email: irb@wpi.edu) and the Human Protection Administrator (Gabriel Johnson, Tel. 508-831-4989, Email: gjohnson@wpi.edu).

Your participation in this research is voluntary. Your refusal to participate will not result in any penalty to you or any loss of benefits to which you may otherwise be entitled. You may decide to stop participating in the research at any time without penalty or loss of other benefits. The project investigators retain the right to cancel or postpone the experimental procedures at any time they see fit.

By signing below, you acknowledge that you have been informed about and consent to be a participant in the study described above. Make sure that your questions are answered to your satisfaction before signing. You are entitled to retain a copy of this consent agreement.

Study Participant Signature

Date: _____

Study Participant Name (Please print)

Signature of Person who explained this study

Date: _____

Appendix B. IRB Approval

WORCESTER POLYTECHNIC INSTITUTE

100 INSTITUTE ROAD, WORCESTER MA 01609 USA

Institutional Review Board

FWA #00030698 - HHS #00007374

Notification of IRB Approval

Date: 11-Mar-2024
PI: Karen K Oates
Protocol Number: IRB-24-0552
Protocol Title: Maximizing Utilization of Armenian EyeCare Diabetes Online Training Platform
Approved Study Personnel: Oates, Karen K~Sirota, Nicholas C~Maciel, Leah B~
Effective Date: 11-Mar-2024
Exemption Category: 2
Sponsor*:

The WPI Institutional Review Board (IRB) has reviewed the materials submitted with regard to the above-mentioned protocol. We have determined that this research is exempt from further IRB review under 45 CFR § 46.104 (d). For a detailed description of the categories of exempt research, please refer to the [IRB website](#).

The study is approved indefinitely unless terminated sooner (in writing) by yourself or the WPI IRB. Amendments or changes to the research that might alter this specific approval must be submitted to the WPI IRB for review and may require a full IRB application in order for the research to continue. You are also required to report any adverse events with regard to your study subjects or their data.

Changes to the research which might affect its exempt status must be submitted to the WPI IRB for review and approval before such changes are put into practice. A full IRB application may be required in order for the research to continue.

Please contact the IRB at irb@wpi.edu if you have any questions.

*if blank, the IRB has not reviewed any funding proposal for this protocol

Appendix C. Interview Guide for Medical Professionals in English

Purpose of the interview: To explore strategies for increasing user engagement and attracting more users to the platform.

1. Can you briefly describe your experience and involvement in managing patients with diabetes?
2. In your opinion, what are the primary concerns or needs of individuals living with diabetes or their caregivers regarding diabetes?
3. How often do patients seek information from you about diabetes? How do you respond and what resources do you provide them with?
4. Have you had any difficulties with guiding patients on how to properly manage diabetes? If so, can you briefly describe them?
5. Can you describe your previous experience with online resources or platforms related to diabetes or diabetes-induced eye complications?
6. What factors do you think would motivate medical professionals like yourself to engage with an online training platform focused on diabetes?
7. Are there any specific features or resources that you believe would be particularly appealing to medical professionals?
8. How do you think we can effectively promote the platform to medical professionals within your network or community?
9. What features or resources do you believe would be most valuable for individuals affected by diabetes or their caregivers on such a platform?
10. How can we effectively reach out to and engage individuals affected by diabetes or their caregivers to encourage them to utilize the platform?

11. Have you encountered any similar platforms or initiatives that have effectively attracted and engaged medical professionals or individuals affected by diabetes? If yes, what lessons can we learn from them?
12. Based on your experience and expertise, do you have any suggestions for improving the platform to make it more appealing and useful for both medical professionals and individuals affected by diabetes?

Appendix D. Interview Guide for Medical Professionals in Armenian

1. Կարո՞ղ եք կարճ նկարագրել ձեր փորձը շաքարային դիաբետով բուժառուների հետ:
2. Ձեր կարծիքով, որո՞նք են շաքարային դիաբետով ապրող անհատների կամ նրանց խնամողների առաջնային մտահոգությունները կամ կարիքները՝ կապված շաքարախտի հետ:
3. Որքա՞ն հաճախ են հիվանդները ձեզնից տեղեկատվություն հայցում շաքարային դիաբետի մասին: Ինչպե՞ս եք արձագանքում և ի՞նչ ռեսուրսներ եք տրամադրում նրանց:
4. Դուք որևէ դժվարություն ունեցել եք հիվանդներին շաքարախտի ճիշտ կառավարման ուղղությամբ ուղղորդելու հարցում: Եթե այո, կարող եք համառոտ նկարագրել դրանք:
5. Կարող եք նկարագրել ձեր փորձը առցանց ռեսուրսների կամ հարթակների հետ, որոնք կապված են շաքարային դիաբետի հետ:
6. Ինչ գործոններ եք կարծում, որ կարող են ձեզ նման առողջապահական մասնագետներին դրդել օգտագործել շաքարային դիաբետի մասին առցանց ռեսուրսները հարթակ:
7. Կան հատուկ առանձնահատկություններ կամ ռեսուրսներ, որոնք, ձեր կարծիքով, հատկապես գրավիչ կլինեն բուժաշխատողների համար:
8. Ձեր կարծիքով, ինչպես կարող ենք արդյունավետորեն տարածել հարթակը ձեր համայնքում:
9. Ձեր կարծիքով, որ ռեսուրսներն են առավել արժեքավոր շաքարային դիաբետով հիվանդների կամ նրանց խնամողների համար նման հարթակում:
10. Ինչպես կարող ենք արդյունավետորեն ներգրավել շաքարային դիաբետով հիվանդներին կամ խնամողներին, որպեսզի խրախուսենք նրանց օգտագործել պլատֆորմը:

11. Դուք հանդիպել եք նմանատիպ հարթակների կամ նախաձեռնությունների, որոնք արդյունավետորեն ներգրավել են բուժաշխատողներին կամ շաքարային դիաբետով հիվանդներին: Եթե այո, ապա կարող եք նկարագրել ձեր փորձառությունը:
12. Ելնելով ձեր փորձից և գիտելիքներից՝ ունե՞ք որևէ առաջարկ պլատֆորմի բարելավման համար՝ այն ավելի գրավիչ և օգտակար դարձնելու համար ինչպես բուժաշխատողների, այնպես էլ շաքարային դիաբետով հիվանդների համար:

Appendix E. Focus Group Guide in English

Purpose of the focus group: Understand what people with diabetes know about it and diabetes related blindness, and their willingness to learn more about it.

1. How has diabetes affected your daily life?
2. How do you usually seek out information regarding diabetes?
3. What resources did the doctor provide you with?
4. Have you ever used online resources to learn more about diabetes and other issues surrounding it?
5. What factors around you would influence you to utilize online resources to learn more about diabetes and its revolving issues?
6. What topics were not covered in the OTP or ones that you wanted to learn more about?
7. What social media groups about diabetes are you a part of?

Appendix F. Focus Group Guide in Armenian

1. Ինչպես է շաբարախտը ազդել ձեր առօրյա կյանքի վրա:
2. Ինչպես եք սովորաբար տեղեկատվություն փնտրում շաբարախտի մասին:
3. Ինչ ռեսուրսներ է Ձեզ տրամադրել Ձեր բժիշկը:
4. Երբևէ օգտվել եք առցանց ռեսուրսներից՝ շաբարախտի և դրա հետ կապված այլ խնդիրների մասին ավելի իմանալու համար:
5. Ինչ գործոններ ձեզ կարող են դրդել օգտվել առցանց հարթակի ռեսուրսներից:
6. Որ թեմաների մասին կցանկանայիք ավելի իմանալ:
7. Սոցիալական մեդիայի որ խմբերն եք օգտագործում

Appendix G. Interview Notes

Family Doctor, Vardablur, Lori

- She has experience and sees lots of gaps in the diabetes care. By herself she had to do self-learning.
- Posters about diabetes in her room are really helpful to the patients
- It is hard to break people's habits, mainly regarding their diet.
- Patients have the misconception that they can take medicine and eat whatever they want.
- Diabetes patients need to do lots of physical activity. In the summer they do it since they need to do farming, in winter they spend sitting so it's problematic.
- She first suggests lifestyle changes first and only then prescribes medications
- She gives her patients brochures and her patients also try finding journals/information, confirming it with her.
- Posters they are very useful and people do look at them and pay attention.
- Offline seminars introducing the platform will be good, especially conducted by endocrinologists. Live interaction with the patient is essential.
- There are specific cases that require special attention, so she feels the need to consult specialists.
- If there's a post about the platform, she'll be happy to share it.

Endocrinologist, Hrazdan, Kotayk

- She suggested changing the overall sequence of the videos to make more sense.
- There's very little willingness to be educated about diabetes from patients and their families.
- People usually get information from the internet and there's lots of misinformation. Some of her patients check the information they found with her.
- There's also a big gap of knowledge among family doctors
- She finds brochures and posters useful as she usually doesn't have a lot of time to spend with patients individually.
- It'll be good to include many tables, graphics and visual content in the platform as it's preferred by both patients and doctors.
- A way to engage medical professionals is to contact the hospital directors and ask them to spread the platform
- There are good Facebook groups for doctors, like «Ask Doctors» that have lots of followers.
- She suggested sharing content on her social media and was ready to make new videos for the platform.
- Around 70% of her patients will have hard time using the platform because of technology skill issues, since it's mainly the older generation.

Endocrinological Nurse, Kapan, Syunik

- She talks with patients about diet, medicine, and physical activity the first time their condition is discovered. However, most of the patients do not follow the lifestyle.
- Patients sometimes can't get access to the required tests as they either should be done in Yerevan, or they are paid.
- The main questions the patients have are about diet, medicine, and physical activity.
- A good way to spread the platform to the medical professionals will be doing presentations at the hospital and talking with hospital directors.
- Most of the patients are old people and they do not even have smartphones and computers to use the platform.

Endocrinologist, Yerevan

- No matter how good of a doctor you are and how good medication is, experience shows that the main helping factor is educating the patients about their condition.
- Family doctors are the ones who engage with the patients first and there's a lack of education about diabetes among them.
- The primary concerns that patients have are regarding access to verified information, different doctors and better medication.
- The doctor has been sharing the brochures provided by AECF with her patients.
- The main difficulty regarding working with diabetes patients is that they do not follow the required lifestyle.
- It is important that the educational information also reaches the family members.
- Doctors are busy, therefore, to use the platform they need to have benefits from that
- A good way to reach diabetes patients will be sharing the platform among doctors, who will then spread it to their patients.

Family Doctor, Dzoragyugh, Lori

- She did diabetes school in Vanadzor, contacting the patients through SMS and email to spread the information. During diabetes school she answered and discussed the questions of the patients.
- She likes the fact that the content on platform is in the video format. The doctor said that she'll be happy to use the videos during the diabetes school as a start for discussions.
- During diabetes school, she noticed that people usually think they're alone with their illness. However, when they get to know that their neighbors and friends are also diabetics, it encourages them not to hide their illness.
- The biggest hardship with working with patients is that the patient and their family don't want to accept their illness, stating that it's just a one-time thing.
- She usually gives the booklets about eye diseases provided by AECF to her patients
- She thinks that information about new medication can bring medical professionals to the platform.

Family Doctor, Arevatsag, Lori

- The primary concerns of patients are regarding the diabetes diet.
- Family is very important when managing diabetes, as the family members should also change their lifestyle.
- She usually provides her patients with booklets and conducts diabetes school.
- She thinks a way of bringing more medical professionals to the platform is through contacting the hospital authorities, who can then spread it to the doctors.
- She thinks the most attractive resources for the patients will be content about the diet.
- Good content for the patients can also be videos of relatable success stories to motivate them
- A good way to reach the patients will be through their doctors.

Endocrinologist, Kapan, Syunik

- Most of her diabetes patients are 45+ years old
- The main problem is the misinformation surrounding the condition. Many people hide it because of that.
- The main questions her patients ask are about diet and medicine.
- Physical activity is important but since most of the patients also have accompanying issues because of their age, it is a bit problematic for them to exercise daily.
- The main problem when working with patients is that most of them don't want to accept the fact that they have diabetes.
- She thinks most of her patients will have problems using the platform because of WIFI and technology skill issues. She thinks it'll be better to target their younger family members.
- She thinks the CMS credits issued to doctors will be a good motivation to use the platform.
- A way to share the platform will be doing presentations in school, universities and hospitals. There are also Facebook pages that can be used.
- She finds posters and booklets also helpful and used by her patients.

Appendix H. Focus Group Discussions Notes

Vardablur, Lori

- It'll be good to have content aimed at people from villages too. For example, suggest physical activities that can be done in villages and from home.
- Some of the symptoms the patients have are eyesight problems and pain in the knees.
- To get information, they usually ask the doctor or google it. The questions are mainly about diet. However, the patients note that there's lots of misinformation on the internet, therefore they mostly trust their doctor.
- Some suggestions to improve the platform included making the text bigger and more accessible to people with eyesight problems.

Yerevan

- The primary source of information for the patients is the Internet. When they have questions, they seek information on Google.
- Patients' preferred social media platform is Facebook. They are members of Facebook groups dedicated to diabetes, seeking guidance from both medical professionals and other people with diabetes. However, they acknowledge the inherent unreliability of some online sources.
- Patients expressed enthusiasm about the online training platform and intended to use it as a reliable resource of information about diabetes and other related topics.
- The "Questions to Doctors" section is the patient's favorite feature of the website. They were excited to have the opportunity to ask their questions directly to doctors.

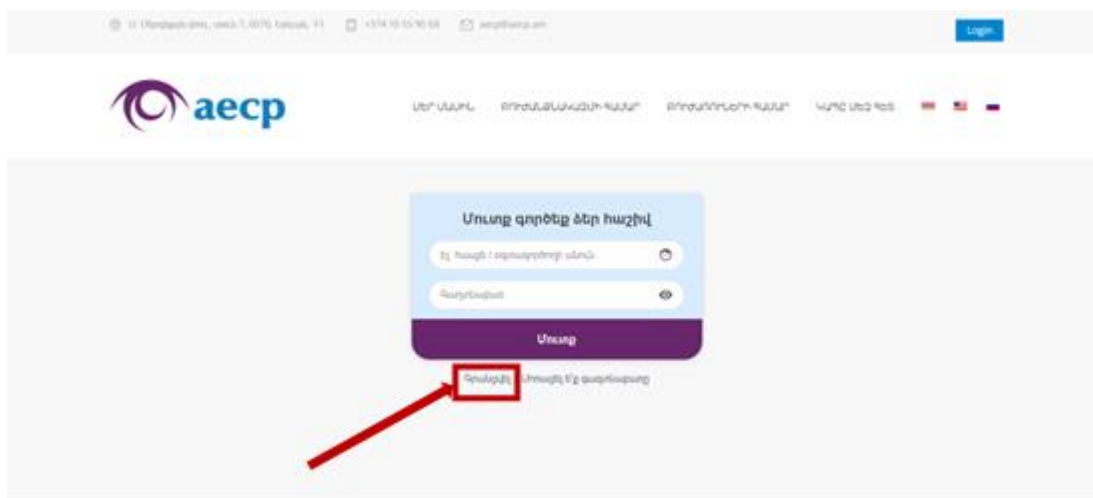
Appendix I. Instruction Manual for using the OTP

As part of one of the recommendations, the team developed an instruction manual for finding the OTP, creating an account, and navigating the platform. This manual will be distributed by the AECP.

1. Navigate to [OTP](#) > (Pathway to where the online tool will be on the page)
2. In the top right, click **Login**



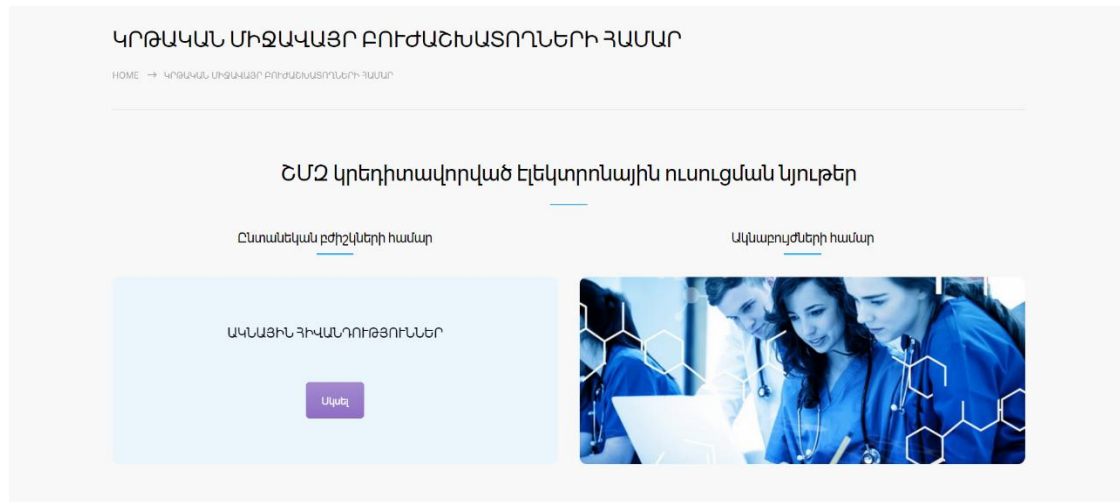
3. To **Register**, click on **Register** below **Login**



4. Enter **E-mail Address, Password, First Name, and Last Name**

If you are a Family Doctor

5. Go to **For Doctors**
6. Review professional resources
7. To take the online test hover over the image under “For Family Doctors” and click **Start**



8. Go through the pdf manual, **Eye Diseases**
9. When ready, click **Start Test**
10. There will be three attempts to take this exam

If you are an Ophthalmologist

11. Go to **For Doctors**
12. Review professional resources
13. To take the online tests hover over the image under “For Ophthalmologists” and click **Start**



14. Go through the pdf manual, **Essentials of Ophthalmology**

15. When ready, click **Start Test**, on each exam

16. There will be three attempts per exam

If you are a patient

17. Go to **For Patients**

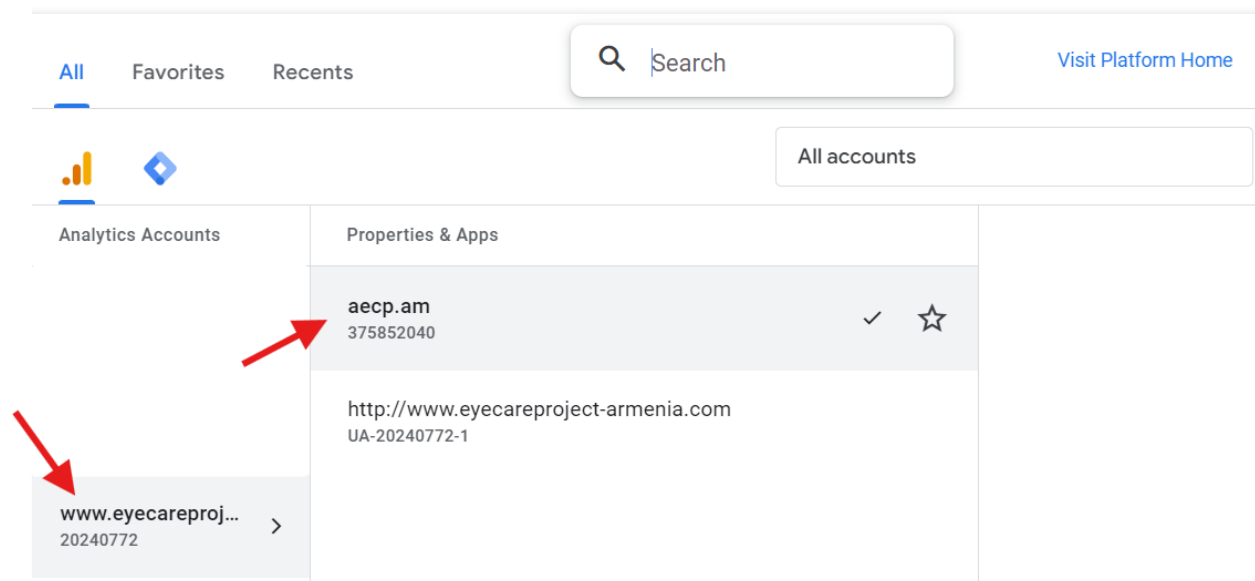
18. Review medical resources, videos, and educational content

Appendix J. Guide to Using Google Analytics

Google Analytics is a free tool that allows the AECP to have an in-depth look into the OTP's performance. The account for Google Analytics for the OTP has already been set up, all that is left to do is view and understand the performance of the OTP.

Signing in

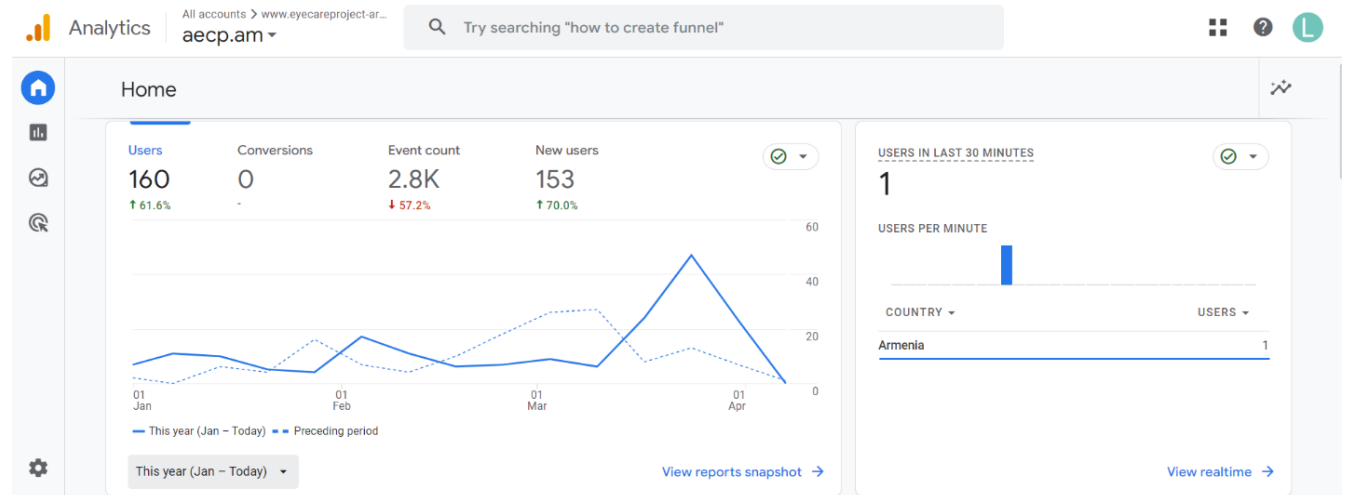
After you have been given access to the Google Analytics page for the OTP, you will receive an email with your login information. Follow the link in the email to sign into your account. To access the information for the OTP, first under **Analytics Account** click on the tab "www.eyecareproject-armenia.com". Under **Properties & Apps** click on "aecp.am". You should now be able to view the dashboard for the OTP's analytics.



Using Google Analytics

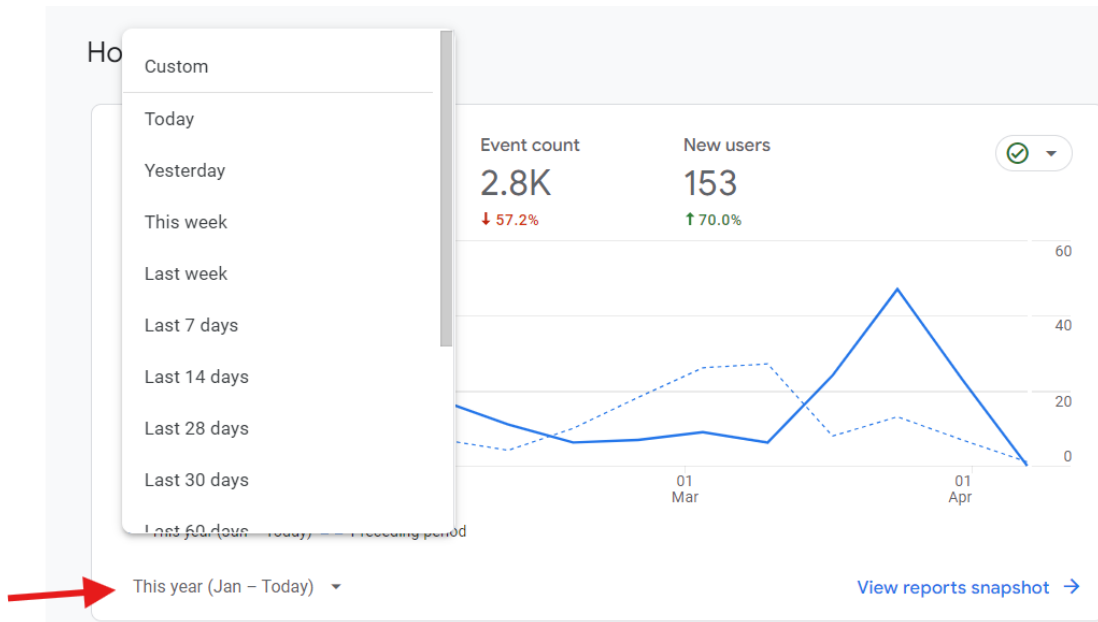
This guide will provide an overview of the aspects of Google Analytics that are most valuable in analyzing the impact of promotion strategies for the OTP. However, it is important to note that many of the following metrics can be modified to view other data or trends about the OTP, depending on your needs from Google Analytics.

Home Tab



The first important section is the **Home** tab. This page will give you a snapshot of the overall performance of the OTP and can be tailored to the metrics you want to view, such as reports, stats, and other figures.

For example, the above Home page is currently set up to view the number of users, conversions, event count, new users, and users in the last 30 minutes. You can change which metrics appear on the **Home** tab, depending on which metrics you want to access most frequently.

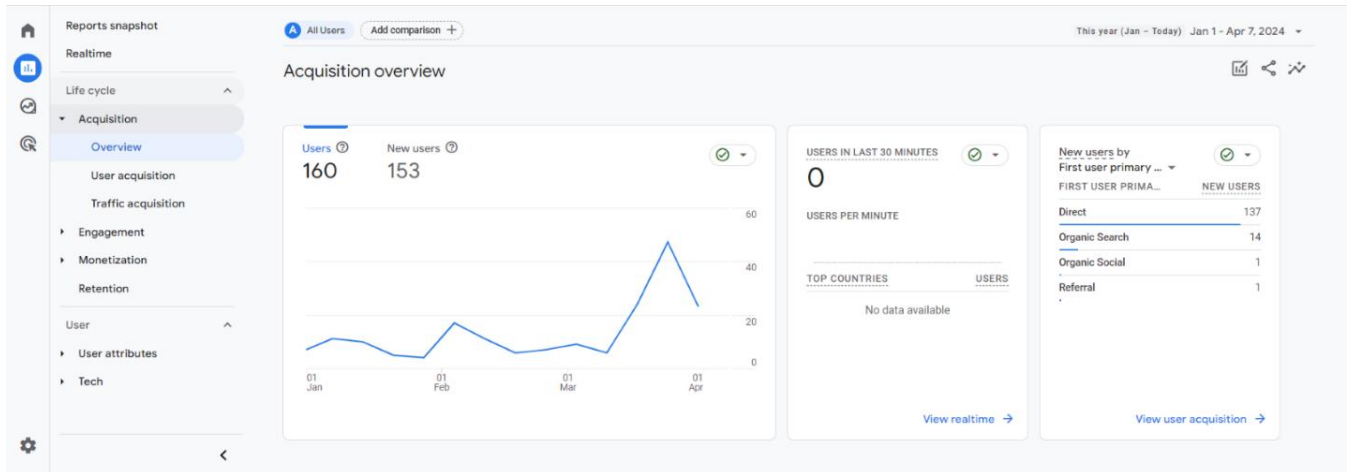


At the bottom of most report metrics and charts, you can adjust the timeframe of the report. There are default timeframes, such as last week, month, year, etc., or you can customize the timeframe. The customization option is valuable when analyzing the effects of implementing a specific recommendation.

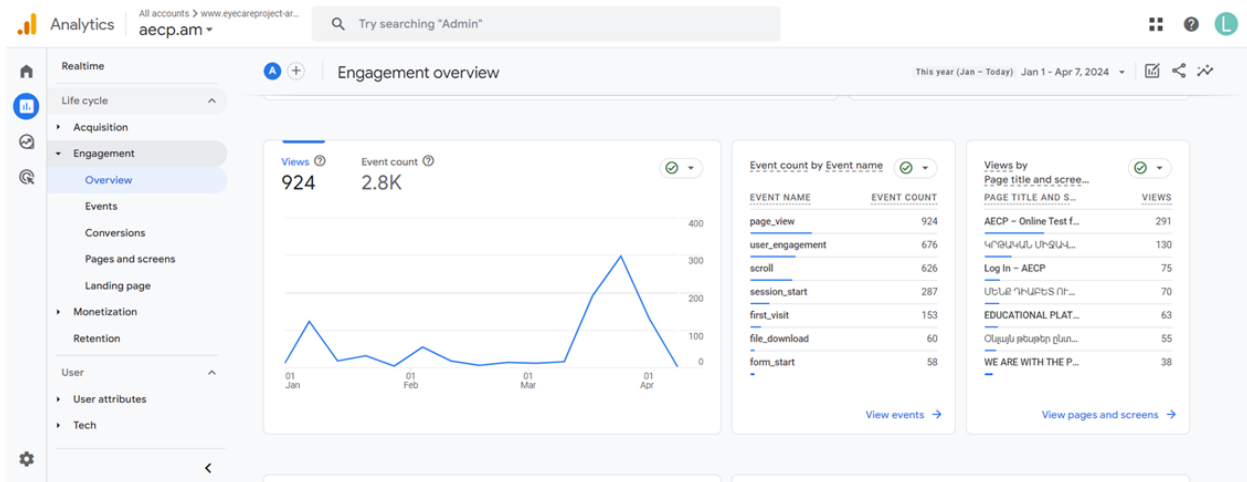
Reports Tab

The next section is the **Reports** tab. This is divided into two sections **Life cycle** and **User**. In **Life cycle** there are 4 sections, **Acquisition**, **Engagement**, **Monetization**, and **Retention**. For the purposes of the OTP, **Acquisition**, **Engagement**, and **Retention** are the most relevant.

Under the **Acquisition** tab you can view the number of users and new users, along with the number of users per minute, new users by first user primary channel, number of sessions by primary channel, and sessions by Google Ads or manual campaigns. Primary channel means the way in which users are accessing the platform. Direct search means that a user typed in the OTP URL or clicked on a link to the platform. Organic search means that a user found the OTP from a search engine result.



For the OTP, the most important metrics are the number of users, new users, and new users by first user primary channel. It is valuable to understand the trends in users, along with how users are finding the platform.



Under the **Engagement** tab you can find information including the average engagement time and trends over time, number of users in the last 30 minutes, trends in page views over time, event counts, and user activity over time. An event in Google Analytics is any interaction with the website, such as loading a page, clicking a link, or logging onto the OTP.

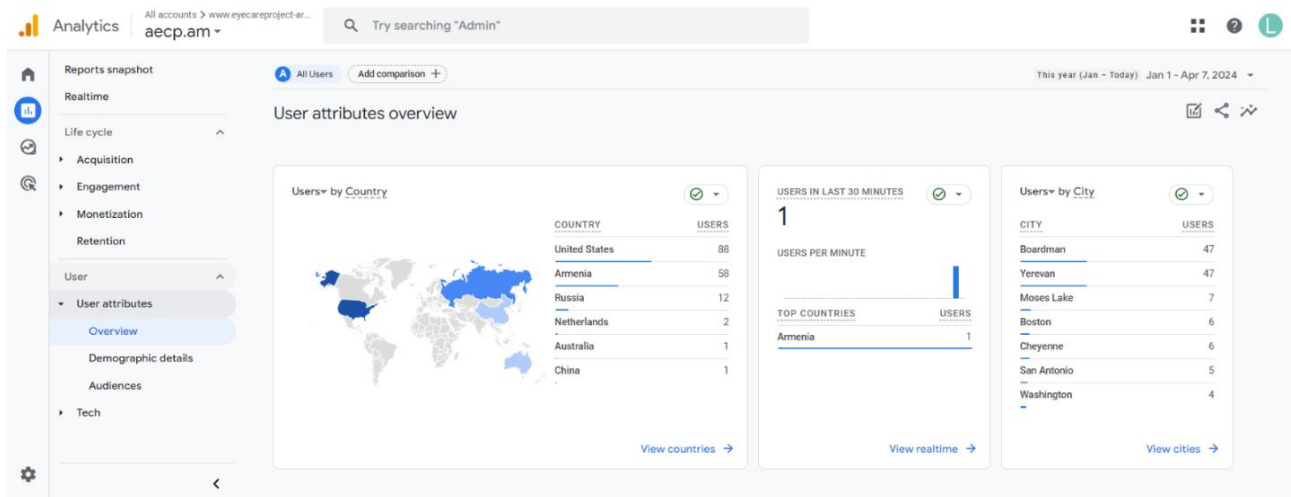
For the OTP, it is useful to understand trends in views, along with what specific pages users are viewing. This could hint at what pages are most popular, and if there are parts of the OTP that should be expanded to include more information.



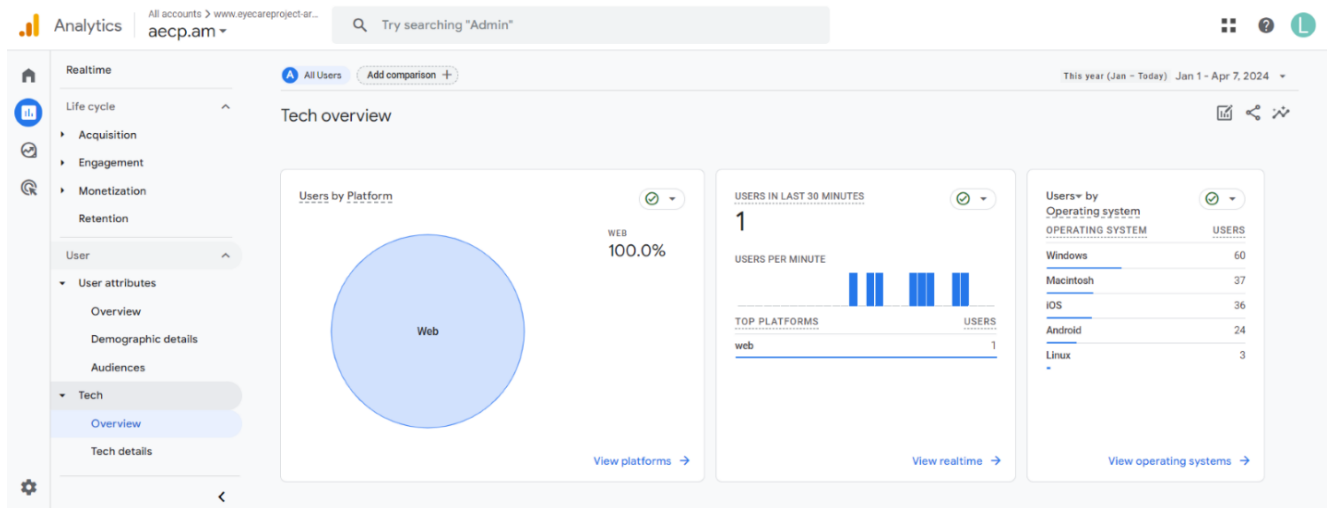
Under the **Retention** tab you can find information about returning users and trends in user retention and engagement over time.

For the OTP, it is important to understand if users are returning to the platform. Ideally users will visit the OTP multiple times to reference information when needed. The **Retention** tab allows you to see how many users are returning to the platform and look at the data for a specific time frame.

Under the **User** tab, there are two main sections, **User attributes** and **Tech**. In **User attributes** you can find information regarding the users by country, number of users in the last 30 minutes, users by city, and users by language.



For the OTP the two most important metrics from this page are the users by country and users by language metrics. Since the OTP is available in Armenian, English, and Russian, it is important that there are users representing all three languages. This section allows you to check what countries/languages are being reached and who the OTP promotion can be targeted towards.



The last section is **Tech**. This section includes information about the platforms, operating systems, browser, and devices users are accessing the OTP from.

This section is useful for better understanding who is using the OTP and how they are accessing the platform. If the OTP is further developed in the future, this section also helps inform user interface design and how accessible the platform needs to be for different types of devices.

Appendix K. Recommendations in Armenian

4.3.3 Viber message for patients in Armenian:

Ողջույն, հարգելի բուժառուներ:

Ցանկանում ենք Ձեզ ներկայացնել Նորաստեղծ առցանց մի հարթակ, որը ստեղծվել է Հայկական Ակնաբուժական Նախագծի կողմից հատուկ շաբարային դիաբետ ունեցող անձանց, նրանց խնամակալների, ինչպես նաև բժիշկների համար:

Հարթակը ներառում է կրթական և ուսուցողական նյութեր առողջ ապրելակերպի, դիաբետի կառավարման, սննդային վարքի և այլնի մասին: Էջում կգտնեք Ձեզ անհրաժեշտ տեղեկատվությունը թե՛ տեսահոլովակների, թե՛ ընթերցանության համար նախատեսված ձեռնարկների միջոցով: Նշենք, որ նյութերը պատրաստված են մասնագետների կողմից և նպատակ ունեն աջակցել Ձեզ լինել տեղեկացված և հնարավորինս արդյունավետ կազմակերպել շաբարային դիաբետի կառավարումը: Հարթակը նաև ընձեռնում է հնարավորություն Ձեր հարցերն ուղղելու անմիջապես մասնագետներին:

Հարթակ մուտք գործելու համար պարզապես անհրաժեշտ է սեղմել այս հղման վրա՝ <https://dmtool.aecp.am/for-patients/>

Հարցերի դեպքում կարող եք կապ հաստատել մեզ հետ:

4.3.3 Viber message for medical professionals in Armenian:

Ողջույն, հարգելի բժիշկներ:

Ցանկանում ենք Ձեզ ներկայացնել Նորաստեղծ առցանց մի հարթակ, որը ստեղծվել է Հայկական Ակնաբուժական Նախագծի կողմից հատուկ ակնաբույժների, ընտանեկան բժիշկների, ինչպես նաև բուժառուների համար և հնարավորություն է ընձեռնում Ձեզ վաստակել ՇՄՁ կրեդիտներ:

Հարթակը ներառում է կրթական և ուսուցողական նյութեր առողջ ապրելակերպի, դիաբետի կառավարման, սննդային վարքի և այլնի մասին: Էջում կգտնեք ինֆորմացիոն տեսահոլովակներ և ընթերցանության համար նախատեսված ձեռնարկներ, որոնք պատրաստված են մասնագետների կողմից:

Հարթակը նպատակ ունի աջակցել Ձեզ լինել տեղեկացված և հնարավորինս արդյունավետ կազմակերպել շաբարային դիաբետի կառավարումը հիվանդների շրջանում:

Հարթակ մուտք գործելու համար պարզապես անհրաժեշտ է սեղմել այս հղման վրա՝ <https://dmtool.aecp.am/for-doctors/>

Հարցերի դեպքում կարող եք կապ հաստատել մեզ հետ:

4.3.4 YouTube description in Armenian:

Այս հոլովակը վերցված է Հայկական Ակնաբուժական Նախագծի կողմից ստեղծված առցանց կրթական հարթակից, որը ստեղծվել է շաբարային դիաբետ ունեցող անձանց, նրանց խնամակալների, ինչպես նաև բժիշկների համար:

Հարթակում կգտնեք ինֆորմացիոն տեսահոլովակներ և ընթերցանության համար նախատեսված ձեռնարկներ՝ պատրաստված բժիշկների կողմից:

Հարթակ մուտք գործելու համար սեղմեք այս հղման վրա՝ <https://dmtool.aecp.am>

4.3.5 Viber messages to promote the Facebook page

Ողջույն, հարգելի բժիշկներ:

Մենք ստեղծել ենք ֆեսբուքյան խումբ, որտեղ կիսվելու ենք շաբարային դիաբետի մասին մեր իսկ պատրաստած տեսահոլովակներով, հիվանդության մասին օգտակար տեղեկատվությամբ և խորհուրդներով՝ վերջինիս արդյունավետ կառավարման համար:

Խնդրում ենք միանալ խմբին և այն տարածել նաև Ձեր բուժառուների շրջանում ևս:

Հղումը՝ <https://www.facebook.com/profile.php?id=61558207125536&mibextid=LQQJ4d>

Ողջույն, հարգելի բուժառուներ:

Մենք ստեղծել ենք ֆեսբուքյան խումբ, որտեղ կիսվելու ենք շաբարային դիաբետի մասին մեր իսկ պատրաստած տեսահոլովակներով, հիվանդության մասին օգտակար տեղեկատվությամբ և խորհուրդներով՝ վերջինիս արդյունավետ կառավարման համար:

Խնդրում ենք միանալ խմբին և այն տարածել շաբարային դիաբետ ունեցող Ձեր ծանոթների շրջանում ևս:

Հղումը՝ <https://www.facebook.com/profile.php?id=61558207125536&mibextid=LQQJ4d>

4.3.12 SEO keywords in Armenian:

- դիաբետ

- դիաբետիկ սնունդ
- շաքարախտի նշաններ
- շաքարախտով հիվանդ
- շաքարային դիաբետ
- շաքարի նորմա
- դիաբետիկ ոտնաթաթ
- շաքարը իջեցնող մթերքներ
- Ինսուլին
- Ինսուլին դեղ
- Ինսուլին նորմա
- Բարձր ինսուլին

SEO keywords in Armenian using Latin characters:

- shaqarayin diabet
- shaqarayin diabeti norman
- shaqari snndakarg
- diabetik snndakarg

Meta title in Armenian:

Առցանց կրթական հարթակ. ամեն բան շաքարային դիաբետի մասին

Meta description in Armenian

Հայկական հարթակ շաքարային դիաբետի կառավարման, սննդային վարքի և այլնի մասին:

Անվճար հասանելիություն բժիշկների կողմից պատրաստված հոլովակներին ու ձեռնարկներին: